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PROCEEDINGS

OF THE

*American*

7 **ENTOMOLOGICAL SOCIETY,**

OF

PHILADELPHIA.

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VOL. I.

1861-3.

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1863.

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# LIST OF PAPERS.

	Page
<b>BLAND, J. H. B.</b>	
Catalogue of the Longicorn Coleoptera taken in the vicinity of Philadelphia . . . . .	93
Descriptions of several supposed new species of Cerambycidae in the collection of the Entomological Society of Philadelphia, with observations on some already described . . . . .	267
Descriptions of a few supposed new species of North American Coleoptera . . . . .	353
<b>BUCKLEY, S. B.</b>	
The Tarantula ( <i>Mygale Hentzii</i> , Girard) and its Destroyer ( <i>Pompilus formosus</i> , Say) . . . . .	138
Description of two new species of Termites from Texas . . . . .	212
<b>CLEMENS, BRACKENRIDGE, M. D.</b>	
Micro-Lepidopterous Larvæ.—Notes on a few species, the imago of which are probably undescribed . . . . .	75
New American Micro-Lepidoptera . . . . .	131
North American Micro-Lepidoptera . . . . .	147
Synopsis of Families of Heterocera . . . . .	173
<b>COUPER, WILLIAM.</b>	
Importance of Insect Architecture to Entomologists . . . . .	370
Remarks on Tent-building Ants . . . . .	373
<b>CRESSON, E. T.</b>	
Catalogue of the Cicindelidæ of North America . . . . .	7
Catalogue of the described species of Tenthredinidæ and Uroceridæ inhabiting North America . . . . .	33
A Catalogue of the described species of several families of Hymenoptera inhabiting North America . . . . .	202
Catalogue of the described species of North American Hymenoptera . . . . .	227, 316
<b>EDWARDS, W. H.</b>	
Notes upon Grapta Comma, Harris, and Grapta Faunus, Edwards (Calbum of some Authors) . . . . .	182

Descriptions of certain species of Diurnal Lepidoptera found within the United States, figured in Doubleday's Genera, but undescribed . . . . .	221
FAY, H. T.	
On Winter Collecting . . . . .	194
GROTE, AUG. R.	
Additions to the Catalogue of U. S. Lepidoptera . . . .	218, 345
HORN, GEO. H., M. D.	
Notes on the Habits of some Coleopterous Larvæ and Pupæ	28
Observations on the habits of some Coleopterous Larvæ & Pupæ	43
Description of some new North American Coleoptera . . .	187
LINTNER, J. R.	
Metamorphoses of <i>Ceratonia quadricornis</i> , Harris . . . .	286
NORTON, EDWARD.	
Notice of several new species of Tenthredinidæ . . . .	143
A description of several new Hymenoptera . . . . .	198
On the synonyms of <i>Cimbex Americana</i> . . . . .	201
Catalogue of our species of <i>Ophion</i> , <i>Anomalon</i> , <i>Paniscus</i> and <i>Campoplex</i> . . . . .	357
OSTEN SACKEN, BARON R.	
On the Cynipidæ of the North American Oaks and their Galls	47
Description of some larvæ of North American Coleoptera (Pl. 1)	105
Characters of the larvæ of Mycetophilidæ (Plate 2) . . .	151
Additions and corrections to the paper entitled: "On the Cynipidæ of the North American Oaks and their Galls" . . .	241
Lasioptera reared from a gall on the golden-rod . . . .	368
RIDINGS, JAMES.	
Description of a supposed new species of <i>Ægeridæ</i> from Virginia, and observations upon <i>Papilio Daunus</i> , Boisdu. . . .	277
UHLER, P. R.	
Descriptions of a few new species of Hemiptera, and observations upon some already described . . . . .	21
WALSH, BENJ. D., M. A.	
On the genera of Aphidæ found in the United States . . .	294

**PROCEEDINGS**  
**OF THE**  
**ENTOMOLOGICAL SOCIETY**  
**OF PHILADELPHIA.**

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**VOL. 1.**

**MARCH, APRIL AND MAY, 1861.**

**No. 1.**

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**LIST OF OFFICERS FOR 1861.**

**PRESIDENT,**  
**George Newman.**

**VICE PRESIDENT,**  
**James H. B. Bland.**

**CORRESPONDING SECRETARY,**  
**Ezra T. Cresson.**

**RECORDING SECRETARY,**  
**J. Frank Knight.**

**TREASURER,**  
**Charles Wilt.**

**COMMITTEE OF PUBLICATION.**  
**Thomas B. Wilson, M. D.,**  
**Ezra T. Cresson,**  
**John Meichel.**



## STATED MEETING, MARCH 11.

President NEWMAN in the Chair.

Seventeen members present.

The Committee appointed to revise the Constitution and By-Laws prior to procuring a Charter, made their final report, which was accepted and the Committee discharged.

## DONATIONS TO CABINET.

65 specimens of *Diptera*, 62 of *Hemiptera*, 2 of *Orthoptera*, 2 of *Neuroptera*, and 1 of *Coleoptera*, presented by Dr. T. B. Wilson.

17 specimens of *Neuroptera*, 18 of *Orthoptera*, 5 of *Hymenoptera*, and 1 of *Hemiptera*, presented by James Ridings.

200 specimens of *Coleoptera*, 2 of *Hymenoptera*, 3 of *Neuroptera*, and 2 of *Hemiptera*, presented by George H. Horn.

2 specimens of *Diptera*, 1 of *Hymenoptera*, 1 of *Orthoptera*, and 1 of *Hemiptera*, presented by George Newman.

43 specimens of *Coleoptera*, presented by James H. B. Bland.

2 specimens of *Hymenoptera*, presented by Charles Wilt.

Total, 244 *Coleoptera*, 63 *Hemiptera*, 67 *Diptera*, 21 *Orthoptera*, 22 *Neuroptera*, and 10 *Hymenoptera*—430 specimens.

## DONATIONS TO LIBRARY.

*Libellulinæ Europææ descriptæ ac depictæ a Toussaint de Charpentier. Lipsiæ, 1840*, presented by Dr. T. B. Wilson.

## WRITTEN COMMUNICATION.

A communication was read from Mr. Bland, in which he stated that he collected on the 3rd inst., near Newtown, N. J., specimens of *Caraus vinctus*, Web., *Notiophilus porrectus*, Say, *Stenolophus ochropezus*, Say, and *Chalepus trachypygus*, Burm., in rotten stumps; also *Copris ammon*, Fab., *Aphodius fimetarius*, Fab., *Aphodius inquinatus*, Lec., and *Geotrupes Egeriei*, Germ., under dung.

## VERBAL COMMUNICATIONS.

Mr. Newman exhibited to the members a species of *Apate*, both in a perfect and grub state; he found this insect eating the wood work of a rustic flower stand at Prof. Rogers' conservatory; they had completely riddled the wood, thereby showing to perfection their destructive character. Specimens of the wood were also exhibited.

Mr. Horn called the attention of the members to the necessity of collecting the larvæ of insects, as the study of that portion of Entomology was of vast importance to the scientific world.

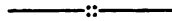
## NEW BUSINESS.

The report of the Committee on Constitution and By-Laws was next taken up, and that portion relating to the Constitution was unanimously adopted.

## PROPOSALS AND ELECTIONS.

Proposition No. 45 for membership was read.

On ballot, Dr. George Hewston and Mr. Wm. W. Lumbry, of Philadelphia, were elected.



## STATED MEETING, MARCH 25.

President NEWMAN in the Chair.

Nineteen members present.

## DONATIONS TO CABINET.

50 specimens of *Hymenoptera*, 29 of *Diptera*, and 3 of *Coleoptera*, presented by Rev. J. H. McFarland.

## DONATIONS TO LIBRARY.

The following works were deposited by Dr. Samuel Lewis:

*Merian de Europäische Insecten.*—*Merian de Surinaamsche Insecten.* Amsterdam, 1750.

*Archives de l'histoire des insectes, publiées en Allemand.* Par Jean Gaspar Fuessly. Winterthour, 1794.

*Analecta Entomologica.* Auctore Joh. Wilh. Dalman. Holmiz, 1823. *Bericht über eine auf Madagascar veranstaltete Sammlung von Insecten aus der Ordnung Coleoptera, von Dr. Fr. Klug.* Berlin, 1833.

*Burmeister's Manual of Entomology, translated from the German by W. E. Shuckard.* London, 1836.

*Linnaea Entomologica.* Zeitschrift herausgegeben von dem Entomologischen Vereine in Stettin. 3 Bände. Berlin, 1857—1859.

*Encyclopédie d'Histoire Naturelle.* Annelés. Paris, 1859. *Coléoptères, Part 3.* Paris, 1860. Par Le Dr. Chenu.

## VERBAL COMMUNICATION.

Mr. Newman exhibited a piece of grape vine with twenty-four eggs of *Platyphylum concavum*, Harris, (common katy-did) deposited upon it.

Mr. N. remarked that the eggs remain in that state all winter and hatch out in the month of June.

## NEW BUSINESS.

The report of the Committee on Constitution and By-Laws was next taken up, and that portion relating to the By-Laws was unanimously adopted.

## ELECTIONS.

On ballot, Dr. T. B. Wilson, Ezra T. Cresson and John Meichel were elected to serve as Committee of Publication for 1861.

Thomas Daly, of Philadelphia, was then elected a member.



## STATED MEETING, APRIL 8.

President NEWMAN in the Chair.

Twenty-three members present.

## DONATIONS TO CABINET.

1124 specimens of *Coleoptera*, embracing several new and very interesting species from the Western States, presented by John Pearsall.

675 specimens of *Coleoptera*, 36 *Hemiptera*, 7 *Neuroptera*, and 6 *Orthoptera*, presented by Dr. T. B. Wilson.

140 specimens of *Coleoptera*, presented by James D. Dowling.

100 specimens of *Coleoptera*, presented by Henry Ulke. This lot embraces many rare and interesting species, among which are the following:

<i>Cicindela obsoleta</i> , Say.	<i>Euryptychus heterocerus</i> , (Say).
“ <i>decemnotata</i> , Say.	<i>Hylocharis nigricornis</i> , (Say).
“ <i>albilabris</i> , Kirby.	<i>Platycerus depressus</i> , Lec.
“ <i>micans</i> , Fabr.	<i>Limonius vagus</i> , Lec.
“ <i>limbalis</i> , Klug.	<i>Corymbetes Kendalli</i> , Kirby.
<i>Oodes aeruginosus</i> , Chaud.	“ <i>aeripennis</i> , (Kirby).
<i>Matus bicarinatus</i> , Say.	<i>Elatér apicatus</i> , Say.
<i>Berosus pallescens</i> , Lec.	<i>Ulochaetes leoninus</i> , Lec.
<i>Silpha bituberosa</i> , Lec.	<i>Chrysomela sigmoidea</i> , Lec.
<i>Byrrhus varius</i> , Fabr.	<i>Anthicus floralis</i> , Payk.
<i>Tryplox flavicollis</i> , Lao.	“ <i>thoracicus</i> , Férté.
<i>Cardiophorus cardice</i> , Say.	“ <i>vicinus</i> , Férté.

27 specimens of *Coleoptera*, presented by William Evett.

5 specimens of *Coleoptera*, presented by J. H. B. Bland.

Total, 2120 specimens.

## DONATIONS TO LIBRARY.

*Systematische Beschreibung der bekannten Europäischen zweiflügeligen Insecten*, von Joh. Wilh. Meigen. Vols. 1—7.

Also a complete set of the *Proceedings and Journal* (second series) of the *Academy of Natural Sciences of Philadelphia*, presented by Dr. T. B. Wilson.

*Histoire Naturelle des Insectes. Genera des Coléoptères ou exposé méthodique et critique de tous les genres proposés jusqu'ici dans cet ordre d'insectes*, par M. Th. Lacordaire. Tome 1—5. Paris, 1854—1859; deposited by E. T. Cresson.

*Entomologist's Weekly Intelligencer*, Vols. 1—8, and Nos. 209—230 of Vol. 9. London, 1856—1861; presented by E. T. Cresson.

## WRITTEN COMMUNICATIONS.

A communication was read from Mr. Bland, in which he stated having collected this week, *Haliphus americanus*, Aubé, *Berosus striatus*, Say, and *Dineutes americanus*, Linn., in ditches below the city.

The following papers were presented for publication in the *Proceedings*:

"Catalogue of the Cicindelidæ of North America, by E. T. Cresson."

"Descriptions of a few new species of Hemiptera, and observations upon some already described, by P. R. Uhler."

And were referred to Committees.

—————::—————

## STATED MEETING, MAY 13.

President NEWMAN in the Chair.

Fifteen members present.

## REPORTS OF COMMITTEES.

The Committees on Mr. Cresson's paper and on Mr. Uhler's paper, read April 8th, reported in favor of their publication in the *Proceedings* of the Society.

## DONATIONS TO CABINET.

51 specimens of *Coleoptera*, 20 *Diptera*, 9 *Hemiptera*, 6 *Hymenoptera*, 5 *Orthoptera*, and 1 *Neuroptera*, presented by Wm. Evett.

42 specimens of *Coleoptera* and 46 *Hemiptera*, presented by James Ridings.

14 specimens of *Coleoptera* and 12 *Hemiptera*, presented by T. Bunte.

8 specimens of *Coleoptera*, 3 *Hymenoptera*, 2 *Orthoptera* and 1 *Diptera*, presented by George Newman.

11 specimens of *Hymenoptera*, presented by Rev. J. H. McFarland.

5 specimens of *Coleoptera*, presented by Messrs. Feldman and Wenzel.

3 specimens of *Coleoptera*, presented by Dr. Samuel Lewis.

3 specimens of *Coleoptera*, presented by J. D. Dowling.

1 specimen of *Coleoptera*, and a larva of *Ceratocampa regalis*, Fabr., neatly prepared and presented by J. H. B. Bland.

Total, 244 specimens.

#### DONATION TO LIBRARY.

*Arcana Naturæ, ou Archives d'Histoire Naturelle.* Par M. James Thomson. Paris, 1859. Presented by Dr. T. B. Wilson.

#### WRITTEN COMMUNICATIONS.

A communication was read from Mr. Newman, in which he reports having collected the following insects in the vicinity of Red Bank, New Jersey, on the 14th and 27th of April:

*Coleoptera*: *Cicindela baltimorensis*, *Cicindela patruela*, *Cicindela, generosa*, *Cicindela purpurea*, *Cicindela rugifrons*, *Elaphrus ruscarius*, *Helluomorpha laticornis*, *Lebia vittata*, *Platynus (Agonum) octopunctata*, *Cucujus clavipes*, *Canthon chalcites*, *Cremastochilus Harrisii*, *Anomala binotata*, *Lachnosterna tristis*, *Lachnosterna brevicollis*, *Serica vespertina*, *Stephanucha areata*, *Corymbites tarsalis*, *Chrysomela philadelphica*, *Hippodamia parenthesis*, *Coccinella novemnotata*, and *Lycoperdina angulata*.

*Lepidoptera*: *Anthocaris genutia*, *Colias philodice*, *Vanessa antiopa*, *Grapta interrogationis*, *Pyrameis atalanta*, *Thecla nippon*, *Thecla smilacis*, *Polyommatus phleas*, and *Nisoniades juvenalis*.

Also a communication from Mr. Ridings, reporting the capture of the following Coleopterous insects since the last meeting:

*Elaphrus ruscarius*, *Omophron americanum*, *Ardistomus viridis*, *Languria trifasciata*, *Gnorimus maculosus*, *Asemum moestum*, *Elaphidion (Stenosphenus) notatum*, *Rhagium lineatum*, *Eudercus pini*, and *Clytus marginicollis*.

Also a communication from Mr. Bland, in which he reports having taken the following Coleopterous insects on the 12th inst., in a wood on the Media railroad, between Darby and Gray's lane, under stones and rotten wood:

*Cychrus stenostomus*, *Pterostichus (Pæcilus) lucublandus*, *Lachnosterna fusca*, and *Lachnosterna hirsuta*.

**Catalogue of the CICINDELIDÆ of North America.**

BY E. T. CRESSON.

The object in preparing this Catalogue has been to give, as far as possible, a complete list of the species of Cicindelidæ found in North America, with references to where they are described and figured.

The habits and locality, as far as known, are also given to facilitate the researches of collectors. I have not attempted to classify the species of Cicindela, as I have only a few Mexican and West Indian species within my reach to refer to; therefore, I have arranged them in alphabetical order, until some entomologist undertakes the task of monographing them.

**CICINDELIDÆ.**

The species of this family are very predaceous, living almost entirely upon other insects, both in their larva and perfect state, seizing and devouring every insect they can overcome, sparing not even their own species. Linnæus has very appropriately termed them "insect tigers," as they are certainly the most savage of all Coleoptera.

**AMBLYCHEILA, Say.**

*I. A. cylindriciformis*, Say (*Manticora*), Journ. Acad. Nat. Sc. 3, 139; Trans. Am. Phil. Soc. 4, 409; Thomson, Monog. des Cicind. tab. 3, fig. 3; Lec. Pr. Acad. Nat. Sc. 7, 32, tab. 1; Col. Kansas and N. Mex. 1856, tab. 2, fig. 1.

*A. Piccolomini*, Reiche, Ann. Soc. Ent. Fr. 8, 560; tab. 19.

Cabinet of the Society. This remarkable insect is probably crepuscular or nocturnal in its habits, but nothing definite is as yet known.

Specimens have been taken in California, New Mexico and Kansas, near the base of the Rocky Mountains.

**OMUS, Esch.**

1. *O. Dejeanii*, Reiche, Ann. Soc. Ent. Fr. 7, 297; tab. 10, fig. 1. Thomson, Monog. des Cicind. tab. 3, fig. 4; Lec. Pac. R. R. Report, 1857, p. 27; tab. 1, fig. 1.

Found in Oregon and Washington Territory. Cabinet of Mr. H. Ulke.

2. *O. californicus*, Esch. Zool. Atlas, p. 5; tab. 4, fig. 1; Reiche, Ann. Soc. Ent. Fr. 7, 301; tab. 10, fig. 3. (copied): Mann. Bull. Soc. de Mosc. 1843, 182; Thomson, Monog. des Cicind. tab. 3, fig. 5—6; Lec. Pac. R. R. Report, 1857, p. 27; tab. 1, fig. 3.

Found in California. Rare. Cabinet of Mr. Henry Ulke.

3. *O. Audouinii*, Reiche, Ann. Soc. Ent. Fr. 7, 800; tab. 10, fig. 2: Thomson, Monog. des Cicind. tab. 8, fig. 7—8: Lec. Pac. R. R. Report, 1857, p. 27; tab. 1, fig. 2.

Cabinet of the Society. This species, as well as *O. Dejeanii*, is said to be quite common in Oregon and Washington Territory, and are found running on the ground like spiders.

#### TETRACHA, Westw.

1. *T. carolina*, Linn. (*Cicindela*) Syst. Nat. 2, 657; Gmelin, 1. 4, 1922: Oliv. Ent. 2, 33, 29; tab. 2, fig. 22: Fabr. Syst. El. 1, 233: Dej. Spec. 1, 8: Thomson, Monog. des Cicind. p. 30; tab. 4, fig. 9—10.

*Megacephala carolinensis*, Latr. Gen. Crust. et Ins. 1, 175.

*Megacephala occidentalis*, Klug, Pries. vorr. Ins. 11; Jahrb. Ins. 1, 5.

*Megacephala maculicornis*, Lap. Rev. Ent. de Silb. 2, 29.

*Megacephala mexicana*, Gray, Griff. An. Kingd. 1, 263; tab. 29, fig.

1: Chevr. Col. du Mex. 1st Cent.

Cabinet of the Society. Found in the Southern States, also in Cuba and Mexico. This beautiful insect is very abundant in Texas, under logs and stones near the water's edge; when pursued they do not hesitate to plunge into the water and conceal themselves under stones, and remain there a long time. They very seldom fly, but run with great velocity.

2. *T. geniculata*, Chevr. (*Megacephala*) Col. du Mex. 1st Cent. 27. Lap. Rev. Ent. de Silb. 2, 29: Thomson, Monog. des Cicind. p. 31, tab. 5, fig. 1.

Found in Mexico. According to Mons. Thomson, this species is synonymous with *T. sobrina*, (*Dej.*) from Brazil.

3. *T. virgula*, Thomson. Monog. des Cicind. p. 31.

From Cuba.

4. *T. infusca*, Mann. (*Megacephala*) Bull. de Mosc. 1837: Thomson, Monog. des Cicind. p. 32; tab. 5, fig. 2.

*Megacephala latipennis*, Chaud. Bull. de Mosc. 1843, p. 42.

*Megacephala obscurata*, Chaud. ib.

From St. Domingo.

5. *T. acutipennis*, Dej. (*Megacephala*) Spec. 1, 13: Lap. Etud. Ent. p. 35; Rev. Ent. de Silb. 2, 32: Thomson, Monog. des Cicind. p. 36; tab. 6, fig. 5—6.

*Megacephala Laportei*, Chevr. Rev. Ent. de Silb. 2, 83.

*Megacephala occidentalis*, Klug, Ins. doub. p. 11.

*Megacephala adonis*, Lap. Etud. Ent. p. 35.

Found in Cuba, Hayti and St. Domingo.

6. *T. angustata*, Chevr. (*Megacephala*) Mag. de Zool. 1841, Ins. tab. 55: Thomson, Monog. des Cicind. p. 38; tab. 6, fig. 9.

*Megacephala obscura*, Höpfner: Dej. Cat. 3rd edit. p. 1.

From Mexico.

7. *T. impressa*, Chevr. (*Megacephala*) Mag. de Zool. 1841, Ins. tab. 56: Thomson, Monog. des Cicind. p. 39.

Found in Mexico. According to Mons. Thomson, this species is synonymous with *T. affinis*, (*Dej.*) from South America.

8. *T. virginica*, Linn. (*Cicindela*) Syst. Nat. 2, 657; Gmelin, 1, 4, 1922: Oliv. Ent. 2, 33, 30; tab. 3, fig. 27: Fabr. Syst. El. 1, 233: Lap. Rev. Ent. de Silb. 2, 30—32: Thomson, Monog. des Cicind. p. 41; tab. 7, fig. 7.

Cabinet of the Society. Generally not common; but in July and August of last year, it was taken quite plentiful under logs and stones in elevated grassy fields, on the west side of the Schuylkill, above Philadelphia.

#### IRESIA, Dej.

1. *I. Bouchardi*, Sallé; Chevr. Rev. et Mag. de Zool. 1856, p. 351. Lacord. S. a B. Atlas, tab. 1, fig. 3.

From Mexico. The species of this genus are found on the leaves of trees, and are exceedingly rapid in flight.

#### CICINDELA, Linn.

The species of this genus are remarkable for the perfection and symmetry of their structure, the lightness and velocity of their motions, both on the earth and in the air, and for the splendor and brilliancy of their colors. They prefer arid and sandy places exposed to the sun; their flight is of short duration, rarely exceeding ten or a dozen yards at a time; they are easily alarmed, and generally difficult to capture.

1. *C. abdominalis*, Fabr. Syst. El. 1, 237: Herbst, Käfer, 10, 202: Dej. Sp. 1, 140: Lec. Ann. Lyc. Nat. Hist. 4, 183; tab. 14, fig. 13; Trans. Am. Phil. Soc. 11, 57; tab. 1, fig. 54.

Cabinet of the Society. This is a small black species with a red abdomen; it is quite rare, and generally taken in pine forests on sand blackened by fire. Inhabits the Middle and Southern States in the months of June and July.

2. *C. aerea*, Chevr. Mag. de Zool. 1841, tab. 58.

Found in Mexico.



3. *C. Anacisconensis*, Harris, Family Visitor, (Cleveland, O.) 2, No. 39: Hald. Pr. Acad. Nat. Sc. 6, 361: Lec. Tran. Am. Phil. Soc. 11, p. 38; tab. 1, fig. 15.

Found about the White Mountains, New Hampshire.

4. *C. argentata*, Dej. Sp. 1, 147; Sp. 5, 215.

From Guadeloupe.

5. *C. ascendens*, Lec. Ann. Lyc. Nat. Hist. 5, 172; Trans. Am. Phil. Soc. 11, 51; tab. 1, fig. 42.

From Georgia and West Indies. Perhaps only a variety of *C. serpens*, Lec.

6. *C. aterrima*, Klug, Jahrb. Ins. 1, 35.

Found in Mexico.

7. *C. baltimorensis*, Herbst, Käfer, 10, 180; tab. 172, fig. 3: Lec. Trans. Am.-Phil. Soc. 11, 43; tab. 1, fig. 25.

*C. repanda*, Dej. Sp. 1, 74: Kirby, Fauna Bor. Am. 4, 9.

*C. hirticollis*.† Gould, Bost. Journ. Nat. Hist. 1, 49.

Cabinet of the Society. Common from April to July, in New Jersey, on sandy roads and fields.

8. *C. blanda*, Dej. Sp. 5, 238: Lec. Ann. Lyc. Nat. Hist. 4, 138; Trans. Am. Phil. Soc. 11, 49; tab. 1, fig. 38.

*C. tarsalis*, Lec. Pr. Acad. Nat. Sc. 6, 66.

Cabinet of Mr. Henry Ulke. Found in Georgia and North Carolina, on the banks of rivers.

9. *C. boops*, Mann. Dej. Sp. 5, 258.

Cabinet of the Society. From the West Indies.

10. *C. californica*, Ménétriés, Bull. Soc. Imp. St. Petersb. 1843, 52: Lec. Trans. Am. Phil. Soc. 11, 44—62.

Found in California.

11. *C. carbonaria*, Chevr. Col. du Mex. 2nd Cent. 128.

From Mexico.

12. *C. Catharinæ*, Chevr. Col. du Mex. 2nd Cent. 178.

Found in Mexico.

13. *C. celeripes*, Lec. Ann. Lyc. Nat. Hist. 4, 183; tab. 14, fig. 14; Trans. Am. Phil. Soc. 11, 60; tab. 1, fig. 62.

Cabinet of the Society. Said to be abundant in Kansas in the month of May.

14. *C. chlorocephala*, Chevr. Col. du Mex. 1st Cent.  
Found in Mexico.
15. *C. cinctipennis*, Lec. Ann. Lyc. Nat. Hist. 4, 182; tab. 14,  
fig. 12; Trans. Am. Phil. Soc. 11, 45; tab. 1, fig. 80.  
Cabinet of Mr. Henry Ulke and of the Academy of Natural Sciences.  
Found in Kansas on muddy plains.
16. *C. circumpecta*, Férté, Rev. Zool. 1841, 39, 193; Lec. Trans.  
Am. Phil. Soc. 11, 58; tab. 1, fig. 57.  
Cabinet of the Society. Found in Texas.
17. *C. corvina*, Lec. Trans. Am. Phil. Soc. 11, 53; tab. 1, fig. 47.  
Cabinet of the Society. From Mexico and Texas.
18. *C. Craverii*, Thomson, Rev. et Mag. de Zool. 1856, 528.  
From Mexico.
19. *C. Cristoforii*, Chevr. Mag. de Zool. 1841.  
Found in Mexico.
20. *C. cumatilis*, Lec. Ann. Lyc. Nat. Hist. 5, 173; Trans. Am.  
Phil. Soc. 11, 56; tab. 1, fig. 53.  
*C. Guexiana*, Chevr. Rev. et Mag. de Zool. 1852, 424.  
Cabinet of Mr. Henry Ulke and of the Academy of Natural Sciences.
21. *C. cuprascens*, Lec. Pr. Acad. Nat. Sc. 6, 65; Trans. Am.  
Phil. Soc. 11, 49; tab. 1, fig. 37.  
*C. blanda*, † (var.) Lec. Ann. Lyc. Nat. Hist. 4, 180; Chaud. Bull.  
Mosc. 1854.  
Cabinet of the Society. From Missouri and Kansas.
22. *C. cursitans*, Lec. Trans. Am. Phil. Soc. 11, 60; tab. 1, fig. 63.  
Cabinet of Mr. Henry Ulke. I am informed by Mr. Ulke that there  
has at last a locality for this insect been found in Southern Illinois; it  
was seen running very quickly on the sand quite in abundance. It is  
apterous.
23. *C. curvata*, Chevr. Col. du Mex. 1st Cent.  
From Mexico.
24. *C. cyaniventris*, Chevr. Col. du Mex. 1st Cent.  
Cabinet of the Academy of Natural Sciences. From Mexico.
25. *C. cyanella*, Lec. Trans. Am. Phil. Soc. 11, 46; tab. 1, fig. 31.  
Cabinet of Mr. Henry Ulke. Found in Kansas.
26. *C. cyanospa*ra, Chaud. Bull. Mosc. 1842, Pt. 1, p. 23  
From Yucatan.

27. *C. decemnotata*, Say, Am. Ent. tab. 18; Journ. Acad. Nat. Sc. 1, 19.

Cabinet of the Society. Found in Kansas and Nebraska.

28. *C. decostigma*, Chevr. Col. du Mex. 1st Cent: Lec. Trans. Am. Phil. Soc. 1, 54; tab. 1, fig. 48.

*C. mexicana*, Klug, Jahrb. Ins. 1, 31.

Cabinet of the Society. From Texas and Mexico.

29. *C. dorsalis*, Say, Journ. Acad. Nat. Sc. 1, 20; Trans. Am. Phil. Soc. 1, 415; tab. 13, fig. 5: Gould, Bost. Journ. Nat. Hist. 1, 47: Lec. Trans. Am. Phil. Soc. 11, 47; tab. 1, fig. 32.

*C. signata*, Dej. Spec. 1, 124.

Cabinet of the Society. Very abundant on the seashore of New Jersey in July and August. Mr. Henry Feldman informs me that he has taken this species on the eastern shore of the Delaware River as far up as Red Bank. The Society possesses a specimen captured by Mr. John Meichel on the bank of a small stream near Lancaster, Pennsylvania.

30. *C. duodecim-guttata*, Dej. Sp. 1, 73: Gould, Bost. Journ. Nat. Hist. 1, 51; tab. 3, fig. 3: Lec. Trans. Am. Phil. Soc. 11, 42; tab. 1, fig. 24.

*C. Proteus*, Kirby, Fauna Bor. Am. 4, 9.

Cabinet of the Society. Found almost everywhere in the United States, and in various localities. In Pennsylvania they are most generally found on clay soil about brick yards, in the months of May and June.

31. *C. fera*, Chevr. Col. du Mex. 1st Cent.  
Found in Mexico.

32. *C. ferrugata*, Putz. Mém. Soc. Liège, 2, 366.  
From Mexico.

33. *C. flammula*, Thomson, Ann. Soc. Ent. Fr. 3rd ser. 4, 326; tab. 8, fig. 5.  
Found in Mexico.

34. *C. flava-punctata*, Chevr. Col. du Mex. 1st Cent.

Cabinet of the Society. From Mexico. This species differs from *C. decostigma* by the abdomen being partly red.

35. *C. formosa*, Say, Journ. Acad. Nat. Sc. 1, 19: Am. Ent. tab. 18: Dej. Sp. 2, 424: Lec. Ann. Lyc. Nat. Hist. 4, 180; Trans. Am. Phil. Soc. 11, 39; tab. 1, fig. 18.

Cabinet of the Society. Found in Kansas and Nebraska, near sand hills.

36. *C. fulgida*, Say, Journ. Acad. Nat. Sc. 3, 141: Lec. Ann. Lyc. Nat. Hist. 4, 179; tab. 13, fig. 5; Trans. Am. Phil. Soc. 11, 40; tab. 1, fig. 21.

Cabinet of the Society. Found in Kansas, on sandy places.

37. *C. generosa*, Dej. Sp. 5, 231: Gould, Bost. Journ. Nat. Hist. 1, 42; tab. 3, fig. 2: Lec. Trans. Am. Phil. Soc. 11, 39; tab. 1, fig. 17.

*C. obliquata*, ‡ Kirby, Fauna Bor. Am. 4, 10.

Cabinet of the Society. Found in the Middle and Western States, on sandy roads, from May to September.

38. *C. gratiosa*, Guérin, Rev. Zool. 1840, 37: Lec. Trans. Am. Phil. Soc. 11, 59; tab. 1, fig. 60.

Found on the coast of Florida.

39. *C. guttifera*, Lec. Trans. Am. Phil. Soc. 11, 42; tab. 1, fig. 23. From New Mexico.

40. *C. hemichrysea*, Chevr. Col. du Mex. 2nd Cent. p. 129. From Mexico.

41. *C. hemorrhagica*, Lec. Ann. Lyc. Nat. Hist. 5, 171; Trans. Am. Phil. Soc. 11, 55; tab. 1, fig. 49: Chaud. Bull. Mosc. 1854.

Cabinet of Mr. Henry Ulke and of the Academy of Natural Sciences. Abundant on the seashore at San Diego, California, in the month of June.

42. *C. Hentzii*, Dej. Sp. 5, 428 (*Heutsii*): Lec. Ann. Lyc. Nat. Hist. 4, 182; Trans. Am. Phil. Soc. 11, 55; tab. 1, fig. 50.

*C. hæmorrhoidalis*, || Hentz, Trans. Am. Phil. Soc. 3, 254; tab. 2, fig. 2: Harris, New Engl. Farmer, 7, 91: Gould, Bost. Journ. Nat. Hist. 1, 52; tab. 2, fig. 5.

Cabinet of the Academy of Natural Sciences. From Massachusetts.

43. *C. hirticollis*, Say, Journ. Acad. Nat. Sc. 1, 20; Trans. Am. Phil. Soc. 1, 411; tab. 13, fig. 2: Kirby, Fauna Bor. Am. 4, 8: Chaud. Bull. Mosc. 1854: Lec. Ann. Lyc. Nat. Hist. 4, 180; Trans. Am. Phil. Soc. 11, 43; tab. 1, fig. 26.

*C. albohirta*, Dej. Sp. 2, 425: Gould, Bost. Journ. Nat. Hist. 1, 49; tab. 3, fig. 1.

*C. grävada*, Lec. Ann. Lyc. Nat. Hist. 5, 170.

*C. unita*, Kollar, Ann. Wien. Mus. 1, 330.

Cabinet of the Society. Found from Maine to Texas; abundant on the shores of the oceans, lakes and rivers. Found on the seashore of New Jersey, from March to September.

44. *C. humeralis*, Chevr. Mag. de Zool. 1841, tab. 59.  
From Mexico.
45. *C. hydrophoba*, Chevr. Col. du Mex. 2nd Cent. 125.  
Found in Mexico.
46. *C. imperfecta*, Lec. Ann. Lyc. Nat. Hist. 5, 171; Trans. Am. Phil. Soc. 11, 45; tab. 1, fig. 28.  
From California.
47. *C. incerta*, Chevr. Col. du Mex. 2nd Cent. 127.  
*C. lugens*, Klug, Jahrb. Ins. 1, p. 34.  
From Mexico.
48. *C. inspersa*, Chevr. Col. du Mex. 2nd Cent. 130.  
From Mexico.
49. *C. lacerata*, Chaud. Bull. Mosc. 1854: Lec. Trans. Am. Phil. Soc. 11, 48; tab. 1, fig. 35.  
Cabinet of Mr. H. Ulke. Found on the coast of the Gulf of Mexico.
50. *C. latesignata*, Lec. Ann. Lyc. Nat. Hist. 5, 172; Trans. Am. Phil. Soc. 11, 39; tab. 1, fig. 19; Chaud. Bull. Mosc. 1854.  
Found on the seashore and salt marshes at San Diego, California.
51. *C. Lecontei*, Hald. Pr. Acad. Nat. Sc. 6, 361: Lec. Trans. Am. Phil. Soc. 11, 34; tab. 1, fig. 7.  
Cabinet of the Society. Found in Wisconsin.
52. *C. lemniscata*, Lec. Proc. Acad. Nat. Sc. 7, 220; Trans. Am. Phil. Soc. 11, 59; tab. 1, fig. 61.  
Cabinet of Mr. Henry Ulke. From Arizona.
53. *C. lepidia*, Dej. Sp. 5, 255: Lec. Ann. Lyc. Nat. Hist. 4, 181; tab. 13, fig. 8; Trans. Am. Phil. Soc. 11, 51; tab. 1, fig. 41.  
Cabinet of the Society. Found abundantly on Coney Island, near New York, on the white sandy shore; also at Trenton, New Jersey, and in Missouri.
54. *C. limbata*, Say, Journ. Acad. Nat. Sc. 1, 141.  
From the Nebraska and Arkansas Rivers. Say's type having been destroyed, this species has not since been recovered.
55. *C. longilabris*, Say, Long's Exped. 2, 268: Lec. Ann. Lyc. Nat. Hist. 4, 178; Trans. Am. Phil. Soc. 11, 33; tab. 1, fig. 5.  
*C. albilabris*, Kirby, Fauna Bor. Am. 4, 12; tab. 1, fig. 1.  
Cabinet of the Society. Found in the Northern States and Canada, in paths through grassy and bushy places.

56. *C. luteolineata*, Chevr. Rev. et Mag. de Zool. 1856, p. 351.  
From Mexico.
57. *C. macra*, Lec. Trans. Am. Phil. Soc. 11, 50; tab. 1, fig. 39.  
*C. blanda*, † Lec. Ann. Lyc. Nat. Hist. 4, 190.  
Cabinet of the Society. Found in Wisconsin and Minnesota.
58. *C. macrocnema*, Chaud. Bull. Mosc. 1852, Part 1, p. 15.  
Found in Mexico.
59. *C. marginata*, Fabr. Syst. El. 1, 241: Herbst. Käfer, 10, 206:  
Say, Trans. Am. Phil. Soc. 1, 417; tab. 13, fig. 6: Gould, Bost. Journ.  
Nat. Hist. 1. 48: Lec. Trans. Am. Phil. Soc. 11, 48; tab. 1, fig. 36.  
*C. variegata*, Dej. Sp. 1, 84.  
Cabinet of the Society. Found on the ocean beach of South Carolina  
and Georgia, also on the salt marshes of Massachusetts and New York.
60. *C. marginipennis*, Dej. Sp. 5, 260: Lec. Ann. Lyc. Nat.  
Hist. 4, 182; tab. 14, fig. 11; Trans. Am. Phil. Soc. 11, 57; tab. 1,  
fig. 55.  
Cabinet of the Society. Found on the shores of the Susquehanna  
River, below the bridge at Harrisburg, Pa., in the month of June.
61. *C. media*, Lec. Trans. Am. Phil. Soc. 11, 47; tab. 1, fig. 33.  
Found on the seacoast of South Carolina and Georgia.
62. *C. Mellyi*, Chaud. Bull. Mosc. 1852, Part 1, p. 19.  
From Mexico.
63. *C. Neitii*, Guérin, Rev. Zool. 1844, 254.  
From Mexico.
64. *C. nigrocœrulea*, Lec. Ann. Lyc. Nat. Hist. 4, 181; tab. 14,  
fig. 9; Trans. Am. Phil. Soc. 11, 35; tab. 1, fig. 10.  
Found in Kansas.
65. *C. obsoleta*, Say, Journ. Acad. Nat. Sc. 3, 143: Lec. Ann.  
Lyc. Nat. Hist. 4, 178; tab. 13, fig. 4; Trans. Am. Phil. Soc. 11, 32;  
tab. 1, fig. 2.  
*C. prasina*, Lec. Trans. Am. Phil. Soc. 11, 31 (green variety).  
Cabinet of the Society. Abundant on the arid table lands in Kan-  
sas; also found in Arkansas.
66. *C. ocellata*, Klug, Jahrb. Ins. 1, p. 33.  
From Jalapa, Mexico.
67. *C. oregona*, Lec. Trans. Am. Phil. Soc. 11, 41; tab. 1, fig. 22.  
*C. duodecim-guttata*, † Mén. Bull. Soc. Imp. St. Petersb. 2, 52.  
Cabinet of the Society. From Oregon and Northern California.

68. *C. pallifera*, Chaud. Bull. Mosc. 1852, Part 1, p. 17.  
From Yucatan.

69. *C. patruela*, Dej. Sp. 1, 62: Gould, Bost. Journ. Nat. Hist. 1, 44; tab. 3, fig. 4: Lec. Ann. Lyc. Nat. Hist. 4, 178; Trans. Am. Phil. Soc. 11, 36; tab. 1, fig. 12.

*C. consentanea*, Dej. Sp. 1, 63 (black variety).

Cabinet of the Society. Found in the Middle States, in the month of June, generally about puddles of water in roads running through woods.

70. *C. Pilatei*, Guérin, (*Dromochorus*) Mag. de Zool. 1845, Ins. tab. 162.

A very rare species, found in Texas; it is apterous and of a dull black color. Mr. Henry Ulke possesses a specimen in his beautiful and valuable collection.

71. *C. prætextata*, Lec. Pr. Acad. Nat. Sc. 7, 220: Trans. Am. Phil. Soc. 11, 58; tab. 1, fig. 58.

Cabinet of Mr. Henry Ulke. From Arizona.

72. *C. pulchra*, Say, Journ. Acad. Nat. Sc. 3, 142: Dej. Sp. 2, 421: Lec. Ann. Lyc. Nat. Hist. 4, 175; tab. 13, fig. 1; Trans. Am. Phil. Soc. 11, 34; tab. 1, fig. 6.

Cabinet of the Society. This beautiful insect is not common, and very difficult to capture. Found on the arid table lands near the Rocky Mountains, from the Platte River to the Rio Grande.

73. *C. punctulata*, Oliv. Ent. 33; tab. 2, fig. 18: Fabr. Syst. El. 1, 241: Herbst, Käfer, 10, 173; tab. 171, fig. 8: Dej. Sp. 1, 101: Gould, Bost. Journ. Nat. Hist. 1, 54: Say, Trans. Am. Phil. Soc. 1, 420; tab. 13, fig. 2: Lec. Ann. Lyc. Nat. Hist. 4, 182; Trans. Am. Phil. Soc. 11, 53; tab. 1, fig. 46.

*C. micans*, Fabr. Syst. Suppl. 61: Herbst, Käfer, 10, 180; tab. 172, fig. 2 (green variety).

Cabinet of the Society. A very common species, found in almost every State from Maine to Texas. In Pennsylvania it is generally found on dry roads, and frequently in the streets of cities, from June to September. The green variety is found in Kansas and New Mexico.

74. *C. purpurea*, Oliv. Ent. 33; tab. 3, fig. 34: Herbst, Käfer, 10, 195; tab. 173, fig. 7: Say, Trans. Am. Phil. Soc. 1, 419; tab. 13, fig. 8: Gould, Bost. Journ. Nat. Hist. 1, 44: Lec. Trans. Am. Phil. Soc. 11, 37; tab. 1, fig. 14.

*C. marginalis*, Fabr. Syst. El. 1, 240: Herbst, Käfer, 10, 175; tab. 171, fig. 10: Dej. Sp. 1, 55; Sp. 5, 210.

*C. Audubonii*, Lec. Bost. Journ. Nat. Hist. 5, 207; tab. 18, fig. 7; Lec. Ann. Lyc. Nat. Hist. 4, 176 (black variety).

Cabinet of the Society. Quite common in the Middle and Western States, on roads by the woodside, from March to September. The green and black varieties occur only at the West.

75. *C. pusilla*, Say, Journ. Acad. Nat. Sc. 1, 31; Trans. Am. Phil. Soc. 1, 424; tab. 13: Dej. Sp. 2, 432: Lec. Ann. Lyc. Nat. Hist. 4, 183; Trans. Am. Phil. Soc. 11, 45; tab. 1, fig. 29.

Cabinet of the Society. Found in Kansas, on moist mud.

76. *C. quadrina*, Chevr. Col. du Mex. 2nd Cent. 176.  
From Mexico.

77. *C. radians*, Chevr. Mag. de Zool. 1841, tab. 57.  
Cabinet of the Academy of Natural Sciences. From Mexico.

78. *C. roseiventris*, Chevr. Col. du Mex. 1st Cent.  
*C. semi-circularis*, Klug, Jahrb. Ins. 1, p. 33.  
Found in Mexico.

79. *C. rufiventris*, Dej. Sp. 1, 102: Lec. Trans. Am. Phil. Soc. 11, 56; tab. 1, fig. 52.

Cabinet of Mr. Henry Ulke. Found in the Southern States and St. Domingo.

80. *C. rugifrons*, Dej. Sp. 1, 51; Sp. 5, 209; Gould. Bost. Journ. Nat. Hist. 1, 46: Lec. Trans. Am. Phil. Soc. 11, 34; tab. 1, fig. 8.

*C. denticulata*, Hentz, Trans. Am. Phil. Soc. 3, 254; tab. 2, fig. 1: Harris, New Engl. Farmer, 7, 90.

*C. obscura*, Say, Trans. Am. Phil. Soc. 1, 418.

*C. modesta*, Dej. Sp. 1, 52: Lec. Ann. Lyc. 4, 176 (black variety).

*C. unicolor*, Dej. Sp. 1, 52; Sp. 5, 210: Chevr. Col. du Mex. 2nd Cent.

Cabinet of the Society. Found in the Eastern, Middle and Southern States and Mexico, on sandy roads. The black variety is common in New Jersey in the month of May. It has been stated that the black variety does not occur with the green one, but Mr. Geo. Newman assures me that he has found both varieties together in the same locality.

81. *C. Sallei*, Chevr. Col. du Mex. 2nd Cent. 126.  
From Mexico.

82. *C. Saulcyi*, Guérin, Rev. Zool. 1840, p. 37; 1841, p. 96: Lec. Trans. Am. Phil. Soc. 11, 47; tab. 1, fig. 34.

*C. venusta*, Ferté, Rev. Zool. 1841, p. 37.

Cabinet of the Society. Found on the seashore of the Gulf of Mexico.



83. *C. scutellaris*, Say, Journ. Acad. Nat. Sc. 3, 140: Lec. Ann. Lyc. Nat. Hist. 4, 176; tab. 13, fig. 2; Trans. Am. Phil. Soc. 11, 35; tab. 1, fig. 9.

Cabinet of the Society. A beautiful species, found in Kansas, on sand hills, in the month of June.

84. *C. sedecim-punctata*, Klug. Jahrb. Ins. 1, p. 32: Lec. Trans. Am. Phil. Soc. 11, 56; tab. 1, fig. 51.

*C. rubriventris*, Chevr. Col. du Mex. 2nd Cent. 101.

Cabinet of Mr. Henry Ulke. Found in Mexico and New Mexico.

85. *C. serpens*, Lec. Ann. Lyc. Nat. Hist. 5, 173; Trans. Am. Phil. Soc. 11, 51; tab. 1, fig. 43.

Found at Key West, Florida.

86. *C. severa*, Féré, Rev. Zool. 1841, p. 41: Lec. Trans. Am. Phil. Soc. 11, 58; tab. 1, fig. 56.

From Mexico, Texas and New Mexico.

87. *C. sex-guttata*, Fabr. Ent. Syst. 1, 176; Syst. El. 1, 241: Oliv. Ins. 33; tab. 2, fig. 21: Herbst, Archiv. tab. 27, fig. 17; Käfer, 10, 171; tab. 171, fig. 6: Dej. Sp. 1, 53: Say, Trans. Am. Phil. Soc. 1, 414; tab. 13, fig. 4: Gould, Bost. Journ. Nat. Hist. 1, 45: Lec. Trans. Am. Phil. Soc. 11, 36; tab. 1, fig. 11.

*C. violacea*, (var.) Fabr. Syst. El. 1, 232: Herbst, Käfer, 10, 198.

Cabinet of the Society. A very common species, found from Newfoundland to Texas. In the Middle States it is found most frequently on new cut logs, and also on roads running through woods, from June to September.

88. *C. sigmoidea*, Lec. Ann. Lyc. Nat. Hist. 5, 172; Trans. Am. Phil. Soc. 11, 52; tab. 1, fig. 44.

*C. trifasciata*, (var.) Chaud. Bull. Mosc. 1854, 172.

Cabinet of Mr. Henry Ulke. Found on the seashore at San Diego, California.

89. *C. smaragdina*, Chevr. Col. du Mex. 2nd Cent. 179.  
From Mexico.

90. *C. Sommeri*, Mann. Bull. Mosc. 1837.

Cabinet of the Academy of Natural Sciences. From Mexico.

91. *C. sperata*, Lec. Trans. Am. Phil. Soc. 11, 50; tab. 1, fig. 40.  
Cabinet of the Society. From Mexico and Texas.

92. *C. splendida*, Hentz. Trans. Am. Phil. Soc. 3, 254; tab. 2,

fig. 3: Klug, Jahrb. Ins. 1, 23: Lec. Ann. Lyc. Nat. Hist. 4, 176; Trans. Am. Phil. Soc. 11, 36: tab. 1, fig. 13.

*C. sex-guttata*, (var.) Fabr. Syst. El. 1, 241.

*C. limbalis*, (var.) Klug. Jahrb. Ins. 1, 29.

*C. marginalis*, (var.) Dej. Sp. 5, 210.

*C. spreta*, (var.) Lec. Ann. Lyc. Nat. Hist. 4, 177; tab. 13, fig. 7.

*C. amæna*, (var.) Lec. Ann. Lyc. Nat. Hist. 4, 177; tab. 13, fig. 3.

Cabinet of the Society. Found almost everywhere in the United States, yet not with the varieties intermingled.

93. *C. tenuilineata*, Chevr. Mag. de Zool. 1841.

From Mexico.

94. *C. tenuisignata*, Lec. Ann. Lyc. Nat. Hist. 5, 171; Trans. Am. Phil. Soc. 11, 44; tab. 1, fig. 27.

Cabinet of Mr. Henry Ulke. Found in California, Texas and Mexico.

95. *C. terricola*, Say, Long's Exped. 2, 268.

From Kansas and Nebraska.

96. *C. togata*, Férty, Rev. Zool. 1841, p. 40: Lec. Trans. Am. Phil. Soc. 11, 58; tab. 1, fig. 59.

From Texas and Mexico.

97. *C. tortuosa*, Dej. Sp. 1, 87: Lec. Trans. Am. Phil. Soc. 11, 52; tab. 1, fig. 45.

*C. trifasciata*, Fabr.' Klug, Jahrb. Ins. 1, 21: Chaud. Bull. Mosc. 1854: Lec. Ann. Lyc. Nat. Hist. 4, 181; tab. 14, fig. 10.

Cabinet of the Society. Found in Georgia and Louisiana, on the mud of rice fields; it is also found in the West Indies.

98. *C. unipunctata*, Fabr. Ent. Syst. 1, 174; Syst. El. 1, 238: Oliv. Ins. 33; tab. 3, fig. 27: Herbst, Käfer, 10, 190; tab. 173, fig. 1: Say, Trans. Am. Phil. Soc. 1, 412; tab. 13, fig. 3: Lec. Trans. Am. Phil. Soc. 11, 32; tab. 1, fig. 4.

Cabinet of the Society. Found in the Middle and Southern States, in pine forests and amongst grass, in the month of June.

99. *C. Vasseleti*, Chevr. Col. du Mex. 1st Cent.

From Mexico.

100. *C. venusta*, Lec. Ann. Lyc. Nat. Hist. 4, 179; tab. 13, fig. 6; Trans. Am. Phil. Soc. 11, 39; tab. 1, fig. 16.

Cabinet of the Society. Found in Kansas, on sandy plains.

101. *C. viatica*, Chevr. Col. du Mex. 2nd Cent. 180: Lec. Trans. Am. Phil. Soc. 11, 62; tab. 1.

From Mexico and Sonora.

102. *C. viridicollis*. Dej. Sp. 5, 265: La Sagra, Hist. de Cuba, Ins. tab. 6, fig. 3.

Cabinet of the Academy of Natural Sciences. Found in Cuba.

103. *C. vulgaris*, Say. Trans. Am. Phil. Soc. 1, 409; tab. 13, fig. 1: Gould, Bost. Journ. Nat. Hist. 1, 43: Lec. Ann. Lyc. Nat. Hist. 4, 179; Trans. Am. Phil. Soc. 11, 40; tab. 1, fig. 20.

*C. obliquata*, Dej. Sp. 1, 72: Kirby, Fauna Bor. Am. 4, 10.

Cabinet of the Society. Found in almost every part of the United States.

104. *C. vulturina*, Lec. Proc. Acad. Nat. Sc. 6, 439; Trans. Am. Phil. Soc. 11, 32; tab. 1, fig. 3.

From Texas and Mexico.

105. *C. Walkeriana*, Thomson. Ann. Soc. Ent. Fr. 3rd ser. 4, 331.

From Costa Rica.

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#### ADDITIONS AND CORRECTIONS.

Page 10. Between *C. aterrima* and *C. baltimorensis* insert:  
*C. aurora*, Thomson. Arcana Naturæ, p. 90.  
From Mexico.

Page 12. For *C. flava-punctata* read *C. flavo-punctata*.

Page 16. Between *C. Pilatci* and *C. prætextata* insert:  
*C. ponderosa*, Thomson. Arcana Naturæ, p. 89.  
From Mexico.

Descriptions of a few new species of HEMIPTERA, and observations upon some already described.

BY P. R. UHLER.

PACHYCORIS, Burm.

*P. dissociatus*.—Form of *P. Fabricii*, Linn., greenish or bluish black, shining; head deeply, rather closely, confluent punctured; antennæ black; rostrum piceous; eyes brown; ocelli testaceous; thorax sparsely, shallowly punctured, punctures rather dense in the transverse impression behind the head, lateral margins recurved, slightly sinuated; the usual tubercular prominence at the humeral angles, interior to which is a short longitudinal impression; scutellum punctured like the thorax, punctures becoming closer against the lateral and posterior margins, before the apex slightly depressed, basal fossæ very deep, prolonged in a less deep impression, obliquely inwards, behind the fossæ, near the lateral margin is a shallow depression; corium deep black, finely, closely punctured; beneath polished, coarsely, confluent punctured, punctures becoming shallower and more sparse upon the sides of the venter, middle of the venter to the tip destitute of punctures, finely polished, blue-black; legs black, shining, pubescent.

Length  $7\frac{1}{2}$  lines. Humeral breadth  $4\frac{1}{2}$  lines.

*Hab.*—New Leon, Mexico. (Lt. Couch.) Cabinet of the Smithsonian Institution.

MACRAULAX, Dallas.

*M. tristis*.—Robust, convex, fuscous, irregularly marbled with black; head closely, confluent, deeply punctured with black; antennæ blackish fuscous, pubescent, compressed, second and third joints subequal, fourth and fifth about equal, basal joint shortest; rostrum reaching the penultimate segment, piceous, first joint, base of the second, and articulation of the fourth testaceous, second a little longer than the third, fourth shortest; central lobe of the head projecting beyond the lateral ones; ocelli red; thorax less closely punctured, punctures confluent in spots, especially towards the sides and humeri, lateral margins hardly recurved, slightly sinuated, a rather deep impression behind each eye, a larger one near the lateral middle, and a longitudinal, oblique one interior to each humeral tubercle; scutellum punctured like the thorax, rather less densely so upon the disk, basal lateral impressions rather deep, small, roundish against the thorax, interior to each impression is a small, round black spot; corium punctured like the scutellum, membrane fuliginous; lateral margins of the tergum paler fus-

cous, confluent punctured, the inner edge impunctured; beneath yellowish, coarsely, confluent punctured with black, numerous small, impunctured spots, especially against the sutures of the pectus, each abdominal segment with a small bare spot upon the edge, middle of the venter less densely and more finely punctured, becoming obsolete upon the immediate disk, each side of which is a longitudinal dull spot, central furrow very distinct, reaching obsoletely upon the penultimate segment; coxæ yellow, black in the middle; femora yellowish, black at the tip, and coarsely punctured with black; tibiæ hairy, pale piceous, finely punctured; tarsi blackish-piceous, pubescent.

Length 7 lines. Humeral breadth  $4\frac{1}{2}$  lines.

*Hab.*—Baltimore. Rare. A specimen in the collection of the Society.

This species deviates a little from the type of the genus; differing a little in the length of the rostrum, the shape of the head, and the abdominal furrow does not attain to the posterior margin of the penultimate segment; but it cannot be properly separated from this genus.

#### ZICRONA, Dallas.

*Z. splendida*.—Dark green, polished; head finely margined with yellow anteriorly, emarginated, margins recurved, surface rather finely punctured, middle lobe shorter than the lateral ones; antennæ and rostrum black, the latter with white sides to the first joint, and tips of the basal joints, also whitish; thorax coarsely, confluent punctured posteriorly, more finely and sparsely so towards the anterior angles, anterior margin with a very narrow, each side interrupted, red line, lateral margins red and connected at the humerus with a transverse red line, which crosses the disk; scutellum confluent, and more finely punctured than the thorax, and a red line running parallel to the margin half its length, and the apex red; hemelytra still more finely and densely punctured than the scutellum; embolium white; membrane dark green; lateral margins of the tergum red from the embolium to the apex; beneath coarsely punctured upon the pectus, more finely so upon the venter, middle of the head, an interrupted, spotted line against the legs, connected with an interrupted transverse line upon the antepectus, and the surface between the legs, pearly-white; lateral margins of the ventral segments broadly red, the last segment very narrowly so, disk of the venter and a small spot upon the penultimate segment, also red; each side, behind the discoidal spot, is an elongated silvery spot; legs dark green, polished, punctured, tibiæ and tarsi pubescent.

Length 4 lines. Humeral breadth  $2\frac{1}{2}$  lines.

*Hab.*—California. Cabinet of the Society.

*Zicrona exapta*, Say, is a beautiful species inhabiting Arctic America, New England and Missouri; it is subject to much variation, and one variety has been described by Kirby, N. Zool. p. 276, No. 384, as *Pentatoma variegata*: another variety is *Zicrona marginella*, Dallas, Brit. Mus. Cat. Hemiptera, pt. 1, p. 109, 5.

*Edessa cruciata*, Say, belongs to *Acanthosoma*, and has since been redescribed by Hope, Cat. Hemipt. p. 80, (1837) as *Acanthosoma borealis*.

*Pentatoma tristigma*, Say, belongs to *Euschistus*, and is *E. luridus*, Dallas, Brit. Mus. Cat. Hemipt. pt. 1, p. 207; pl. 7, fig. 6.

#### GONOCERUS, Lat.

*G. obliquus*.—Blackish-fuscous, robust; head, antennæ and rostrum black, the latter with a broad yellow stripe each side beneath; thorax densely covered with black granules, each anterior angle with a small, cylindrical, orange, projecting point, directed forwards, lateral margins orange; scutellum granulated, the extreme tip orange; hemelytra rather less densely granulated than the thorax, embolium lurid, corium bounded posteriorly by a semidiaphanous, narrow whitish band; membrane uniform, deep fuliginous; tergum red, excepting the lateral submargins, posterior margin of the sixth segment and surface of the remaining posterior segments, which are black, lateral margins obscurely and irregularly orange; beneath finely punctured with black, which is bare in places, disclosing the fulvous ground-color; wings dusky hyaline, nervures black; legs black, punctured.

Length  $7\frac{1}{2}$  lines. Humeral breadth  $2\frac{1}{2}$  lines.

*Hab.*—California. Cabinet of the Society.

This species somewhat resembles *G. tristis*, Fabr., but may be known at once from that species, by the band upon the hemelytra, and the rather more robust form.

*Lygæus 5-spinosus*, Say, belongs to the genus *Alydus*, and has since been described by Herrich-Schæffer, Wanzenartigen Insekten, 8, 100; pl. 282, fig. 868, as *Alydus cruentus*.

*Lygæus eurinus*, Say, belongs to *Alydus*, and seems to be the common *Alydus calcaratus*, Linn., found so abundantly in some parts of Europe.

*Lygæus geminatus*, Say, is the common European *Cymus resedæ*, Panz. Fauna Germanica, 40, 20.

*C. multicolor*

## CAPSUS, Fabr.

*C. robiniae*.—Rather slender, sides subparallel, body orange-yellow, finely pubescent; head with two posteriorly approximated, black lines; rostrum, antennæ and eyes black; basal joints of the antennæ rather robust, about one-third the length of the second, all the joints pubescent; thorax yellow, sometimes dusky in the middle, just before the middle a transverse impressed line, which is touched in the middle anteriorly by the apex of a triangular, deeper impression, lateral margins recurved, sides hardly sinuated; scutellum black; disk of the hemelytra longitudinally smoky-black, membrane same color, lateral margin of the corium rather straight; wings fuliginous; beneath bright orange, disk of the venter to the apex smoky; coxæ, trochanters, and bases of the femora beneath white, remaining portions of the legs smoky-black.

Length 3 lines. Humeral breadth 1 line.

*Hab.*—Maryland. It is found in great abundance during some seasons upon *Robinia pseudo-acacia*. I have also taken a specimen in July, upon the common wild grape-vine.

*Capsus rapidus*, Say, has since been described as *Capsus multicolor*, Herrich Schæffer, Wanz. Ins. 8, 19; pl. 254, fig. 795.

## DYSDERCUS, Amyot et Serv.

*D. lunulatus*.—Head yellowish-red, with a bilobed dusky spot upon the middle; antennæ deep reddish-brown, polished, the apical joint slightly pubescent; rostrum pale reddish-yellow; thorax yellowish-red, a little dusky against the anterior margin, posterior lobe occupied by a half-moon shaped black spot, which barely omits the posterior margin and does not touch the lateral margins; scutellum black; hemelytra whitish-yellow, a large half-moon-shaped, blackish spot against the middle of the lateral margin, the round side inwardly, but not reaching to the internal margin, nor running upon the exterior elevated edge; membrane dusky-black; collar white, inferiorly; pleura and two intervening pectoral areas between the coxæ, also white; the remaining inferior surface, excepting the three last segments, which are bright red, yellowish-red; legs dark reddish-lurid, nails blackish.

Length 6 lines.

*Hab.*—Mexico? The specimen described is in the collection of the Society.

PROCEEDINGS  
OF THE  
ENTOMOLOGICAL SOCIETY  
OF PHILADELPHIA.

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VOL. 1. JUNE, JULY, AND AUGUST, 1861. No. 2.

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STATED MEETING, JUNE 10.

President NEWMAN in the Chair.

Fourteen members present.

DONATIONS TO CABINET.

1220 specimens of *Coleoptera*, presented by Henry Ulke.

110 specimens of *Coleoptera*, presented by William Evett.

27 specimens of *Hemiptera*, 20 *Hymenoptera*, 14 *Diptera*, and 6 *Orthoptera*, presented by Dr. George H. Horn.

30 specimens of *Coleoptera*, 13 *Hemiptera*, 10 *Orthoptera*, and 7 *Hymenoptera*, presented by Dr. J. L. Leconte.

Total.—1457 specimens.

DONATIONS TO LIBRARY.

*Proceedings of the Society for March, April, and May*, from the Publication Committee.

*The Entomologist's Annual for 1861*, from E. T. Cresson.

WRITTEN COMMUNICATIONS.

A communication was read from Mr. Newman reporting the capture of the following Coleopterous insects during last month in the vicinity of Red Bank, New Jersey:—*Viridula generosa*, on sandy roads; *Calosoma calidum*, under logs; *Helluomorpha laticornis*, under stones; *Geopinus*



*incrassatus*, burrowing in the sand; *Strategus Antæus*, under a chestnut log; *Serica vespertina*, on chestnut leaves; *Serica trociformis*, on dwarf huckleberry; and *Arhopalus pictus*, on hickory logs. Also the following from near Belmont, Phila.: *Cicindela sexguttata*, *Carabus serratus*, *Dicælus politus*, and *Cassida novemmaculata*, under logs; *Notiophilus porrectus*, and *Helluomorpha laticornis*, under stones; *Matus bicarinatus*, in water; and *Euryomia fulgida*, eating the sap of the locust tree.

Mr. Newman also reports having reared the following Lepidoptera from pupæ and cocoons collected last fall and winter:

*Papilio turnus*, Linn. Larva feeds upon the *Tulip-poplar*.

*Papilio troilus*, Linn. Larva feeds upon the *Sassafras*.

*Papilio philenor*, Linn. Larva feeds upon the *Serpentaria*.

*Papilio asterias*, Fabr. Larva feeds upon the *Carrot*.

*Papilio marcellus*, Cram. Larva feeds upon the *Pau-pau*.

*Saturnia luna*, Drury. Larva feeds upon the *Walnut*.

*Saturnia cecropia*, Linn. Larva feeds upon the *Elder*.

*Saturnia polyphemus*, Fabr. Larva feeds upon the *Oak*.

A communication was read from Mr. Bland, reporting the capture of the following Coleoptera since the last meeting: *Diaperis hydni*, in rotten stumps; *Mycetophagus flexuosus*, *Triplax thoracica*, and *Platydema ruficornis*, in fungi; *Dicælus elongatus*, *Dicælus politus*, and *Lebia scapularis*, all on the west side of the Schuylkill, near Philadelphia.

A communication was also read from Mr. Cresson, stating that he had captured two specimens of *Sphyracephala brevicornis*, Say, (Am. Ent. pl. 52.) on the 4th of May, by the side of a small stream, in a wood a short distance above Frankford, Phila. On the next day he observed them quite in abundance on the leaves of the skunk cabbage, but having no net with him, he could not capture any; he returned a few days afterwards for the purpose of collecting a lot of them, but they had all disappeared, and none have been seen since. It is presumed that this insect can only be found in this locality, between the 1st and 10th of May.

The following paper was presented for publication in the Proceedings, entitled "Notes on the Habits of some Coleopterous Larvæ and Pupæ, by George H. Horn." And was referred to a Committee.

Proposition No. 46 for membership was read.

## STATED MEETING, JULY 8.

President NEWMAN in the Chair.

Sixteen members present.

## REPORT OF COMMITTEE.

The Committee on Dr. Horn's paper read June 10th, reported in favor of its publication in the Proceedings of the Society.

## DONATIONS TO CABINET.

3322 specimens of *Coleoptera*, presented by Henry Ulke.

64 specimens of *Hymenoptera*, 56 *Hemiptera*, 40 *Diptera*, 15 *Orthoptera*, and 7 *Coleoptera*, presented by Dr. George H. Horn.

92 specimens of *Coleoptera*, 60 *Hemiptera*, 29 *Hymenoptera*, 16 *Diptera*, and 4 *Orthoptera*, presented by William Evett.

34 specimens of *Coleoptera*, presented by John Pearsall.

31 specimens of *Coleoptera*, presented by J. H. B. Bland.

4 specimens of *Coleoptera*, presented by Robert Jack.

2 specimens of *Coleoptera*, presented by Dr. James C. Fisher.

2 specimens of *Diptera*, presented by George Newman.

Total,—3776 specimens.

## WRITTEN COMMUNICATIONS.

A letter was read from the Lyceum of Natural History, dated New York, June 24th, 1861, acknowledging the receipt of No. 1, Vol. 1, of the Proceedings.

The following paper was presented for publication in the Proceedings, entitled "Catalogue of the described species of Tenthredinidæ, and Uroceridæ, inhabiting North America, by E. T. Cresson."

And was referred to a Committee.

## NEW BUSINESS.

On motion of Mr. Ridings, the Publication Committee was authorized to publish in the Proceedings of the Society, such reports of the capture of insects made by members up to the commencement of publication, as they may deem necessary.

## ELECTION.

On ballot. Mr. Daniel Wiest, of Philadelphia, was elected a member.

**Notes on the Habits of some Coleopterous Larvæ and Pupæ.**

BY GEORGE H. HORN.

The following observations are few in number, and comprise only, such as have been made on larvæ and pupæ taken during the present season.

Researches into the habits of the larvæ of Coleoptera are attended with considerable difficulty, the conditions required for their existence and development being in many instances so peculiar and so varied, that it is only after repeated failures, that one can attempt to rear them with any reasonable hope of success. Stimulated by the successes of many European entomologists, and by the hope of rearing some valuable insects, I have been induced to enter the field, and so far my attempts have met with much encouragement. Many observations have been made which have not sufficient connection to warrant their publication, these will be reserved for some future article. Descriptions of the larvæ will not be given at present, but will be reserved, until either the author shall have completed their study, or some one already conversant with the subject will undertake their description.

*Dermestes lardarius*, *Linnt.*—This insect is found wherever dried or smoked meat is stored, and when found it generally exists in considerable abundance. The larva is covered with bristly hairs. It is usually seen creeping on the surface of the meat. For food it prefers such as contains much fat and connective tissue, seldom attacking the muscular portions when the others exist. This larva does not often bury itself in its food till about the time of its assuming the pupa state. The insect remains in the latter condition, for a period varying from three or four days to a week or even more, depending principally upon the warmth of the locality.

*Anthrenus destructor*, *Mels.*—To entomologists, one locality for this insect is too well known. It is often taken in flight in the dusk of the evening. Numerous specimens have also been obtained from flowers.

I have lately obtained many specimens in all stages of development, and have had opportunities for noting the time required for all its transformations. The egg is deposited in any fissures that may exist in a specimen, and after development, penetrates toward the centre, in which it remains until perfectly developed, making its presence known by some dust around the pin, if the specimen be an insect.

It requires nearly two weeks for the larva to arrive at a state of growth sufficient for the assumption of the pupa. During this time, the larvæ show great powers of destruction, several of them rendering a large specimen perfectly valueless. In the pupa, it remains about four or five days:

*Ptilodactyla elaterina*, *Illig.*—One specimen of the perfect insect, and many pupæ, together with one larva, were taken by myself. They were all found in one log, which was rather moist and rotten, its texture being so destroyed that it was impossible to distinguish the species, though it was probably Oak. The pupæ were concealed by a thin layer of the wood, and were on the side adjacent the earth. The identity of the pupæ was established by raising several, and by means of the cast larva skin which adhered to a pupa, I was enable to identify the larva.

*Sinoxylon* ——— A short time since I received from Mr. George Newman some fragments of a rustic ornament made from branches of trees. To all appearances there was nothing wrong, though on breaking the pieces, they were found to be completely riddled by this insect. Its borings were in a very fine powder. The time required for its transformations, has not been observed.

The specimens raised by me were referred to Dr. Leconte, who is of the opinion, that this insect is undescribed, should further investigation prove it to be a native species.

*Sinoxylon basillare*, *Say.*—Inhabits hickory wood in which it bores to a considerable depth, preferring the hard central wood. Its borings are very fine, and firmly compressed. No special preparation appears to be made when about to assume the pupa state. After full development is attained, it turns almost at a right angle and emerges through a circular opening in the bark of the hickory. The transformation from the larva through the pupa into the perfect state is made in a very short space of time.

*Anobium paniceum*, *Fabr.*—The larva of this insect is the great destroyer of almost every root or seed used by man. It is known to the druggist as the "worm," and it spares nothing in its ravages, the nourishing oatmeal, the bitter Columbo and Gentian, and the poisonous *Nux Vomica*, suffer alike. It has been known to perforate sheet lead.

I have lately taken it in considerable abundance boring between sheets of cork, such as are used for cabinets, in which situation it makes tortuous canals, ruining the cork almost entirely.

It remains in pupa about four or five days.

*Clytus erythrocephalus*, *Oliv.*—This insect I raised from the logs with the *Sinoxylon basillare*. Its borings are much coarser, and its preference is for the softer portions of the wood. Its course outwardly after having assumed the perfect state is gradual, and not at a right angle, as is the case with the *Sinoxylon*.

*Arhopalus pictus*, *Drury*.—Also inhabits the Hickory. Its excavations are immediately subcortical. Unlike the *Clytus*, its course is not in a line, but it bores in every direction, making extensive excavations.

Its borings are coarse and saw-dust like, and are packed with considerable firmness. When about to become pupa, the larva bores for a slight depth into the wood, and for a distance of about three inches. The aperture is closed with some very coarse splinter-like borings, and after having turned its head in the direction of its previous subcortical dwelling, it undergoes its transformation, and requires about two and sometimes three weeks for becoming a perfect insect.

*Rhagium lineatum*, *Oliv*.—Inhabits pine stumps, under the bark of which it lives. It may be taken in abundance in early spring.

I have never observed the larva, though when about to transform, it places circularly around itself coarse borings, forming a sort of nest.

The time required for development is not known.

*Leptura nitens*, *Forst*.—The larva and pupa of this insect, inhabit the Black Oak. I have never observed either.

*Callidium variabile*, *Linn*.—The larva of this insect may be found in early spring, under the bark of White Oak logs and stumps.

Its habits are similar to the *Arhopalus*. The pupa requires a week or ten days for becoming a perfect insect.

*Callidium varium*, *Fabr*.—Is found with the preceding. The larvæ and pupæ resemble that of the *C. variabile* very closely.

*Synchroa punctata*, *Newm*.—The pupa only, has been observed.

One specimen of the imago with four pupæ, were taken by myself during the third week of May. They live in rotten Oak stumps, thriving best in the White. The pupa requires about one week to perfect itself.

*Centronopus calcaratus*, *Fabr*.—Inhabits Black Oak stumps.

The larva grows with rapidity. It remains in pupa two weeks, and requires four or five days to gain its dark color.

*Centronopus anthracinus*, *Knoch*.—May be taken in company with the latter insect. The larvæ and pupæ of both species resemble each other very closely. The time required for the development of this species is rather shorter than that of *C. calcaratus*.

## STATED MEETING, AUGUST 12.

President NEWMAN in the Chair.

Ten members present.

## REPORT OF COMMITTEE.

The Committee on Mr. Cresson's paper, read July 8th, reported in favor of its publication in the Proceeding of the Society.

## DONATIONS TO CABINET.

150 specimens of *Hemiptera*, 52 *Hymenoptera*, and 25 *Coleoptera*, presented by William Evett.

50 specimens of *Coleoptera*, presented by Dr. Samuel Lewis.

22 specimens of *Diptera*, presented by Dr. T. B. Wilson.

2 specimens of *Coleoptera*, 2 *Hymenoptera*, and 1 *Lepidoptera*, presented by Dr. George H. Horn.

4 specimens of *Hemiptera*, presented by J. H. B. Bland.

1 specimen of *Diptera*, presented by Louis Schneider.

Total.—309 specimens.

## DONATIONS TO LIBRARY.

*Classification of the Coleoptera of North America. By John L. Leconte, M. D.*, presented by the Smithsonian Institution.

*Report on the Measure Worm, or the Geometra Niveosericearia, which infest the trees of Brooklyn; suggesting remedies for their extermination. By Joseph B. Jones, M. D.*, presented by Mr. J. W. Wiedemeyer.

## WRITTEN COMMUNICATIONS.

The following paper was presented for publication in the Proceedings, entitled "Observations on the Habits of some Coleopterous Larvæ and Pupæ. by George H. Horn."

And was referred to a Committee.

A communication was read from Mr. Evett, reporting the capture of the following Coleopterous insects, in the vicinity of Philadelphia, during last May: *Calosoma calidum*, *Dicælus elongatus*, *Dicælus ovalis*, and *Rembus laticollis*, under logs; *Phanæus carnifex*, in Cow dung; *Brachys terminans*, and *Glyptoscelis hirtus*, by bush-beating; *Corymbites æthiops*, and *Gaurotes cyanipennis*, on Oak trees; *Platydemus basalis*, under bark of Pine stumps; *Staphylinus maculosus*, under loose bark on the ground; *Batrachus lineaticollis*, in ants' nests, it is very active after being disturbed; *Nicagus obscurus*, found flying in great abundance on the Eastern shore

of the Delaware, on a bend somewhat elbow-shape, about one mile above Red Bank, N. J. The insect flies gracefully, seldom rising more than four feet from the ground, and it alights with ease; it is in no hurry to rise, and walks rather lazily, opening and extending its beautiful antennæ.

The day was warm and calm. Visited the same place again about a week afterwards, but found only one specimen, under a block of wood. The day was cool and windy.

Also the following Coleoptera, captured during last month, in the same locality: *Ancylochira lineata*, on wild Chamomile; *Corymbites appressifrons*, on Oak trees; *Drapetes geminatus*, *Chalcolepidius viridipilis*, *Dectes spinosa*, *Collops quadrimaculatus*, and *Rhipiphorus dimidiatus*, taken on flowers with beating-net; *Clytus pubescens*, about wood-piles at Reed street wharf; *Tetraopes canteriator*, on the *Asclepias Phylotaccoides*; *Microrhopala Xerene*, taken in abundance with the beating-net, on the banks of Timber Creek, about one mile east of Woodbury Turnpike, N. Jersey.

Also a communication from Mr. Cresson, reporting the capture of the two following species of Coleoptera, during the fore part of July:

*Strategus Antæus*. This insect burrows in the sandy fields of New Jersey, and were taken quite common by digging for them. They descend to the depth varying from one inch to a foot, the females were generally found deeper than the males. By searching for them early in the morning, they can be captured with greater ease, as the earth around the holes is fresh. Locality, near Gloucester, New Jersey.

*Tetraopes canteriator*. Came upon a locality for this insect, between Gloucester and Red Bank, New Jersey, where it occurred in considerable abundance. It frequents the same species of *Asclepias* as the *T. tetrophthalmus*, but were found only upon the young plants.

The following communication was received from Mr. T. B. Ashton, of Washington County, New York, and read before the Society, April 25th, 1859:—

“*PODURA NIVICOLA*, Fitch.—Found on the 18th of April, weather cloudy and cold, temperature above 50° Fah. This insect was met with in countless numbers on and near a swampy piece of ground, through which ran a small creek. My attention was first directed to what I supposed to be soot floating down the creek, and paid no further notice to it, until I discovered the insect in large numbers in the Highway, a few rods distant from the creek, and then suspecting the cause of the soot-like appearance floating on the water, I returned, and to my surprise, found countless millions of them alive and active, piled upon each other to the height of half an inch, and in spots varying from an inch or less, to twelve inches in diameter, floating on the water in every eddy, for a distance of about thirty rods.

I also observed them in vast numbers, in every direction for rods around the creek. This was the only place I met with them on that day, though I passed over, on foot, a tract of country fifteen miles in extent.”

**Catalogue of the described species of TENTHREDINIDÆ, and UROCERIDÆ,  
inhabiting North America.**

BY E. T. CRESSON.

The compilation of a catalogue of the described species of North American Hymenoptera, on the same plan as *Melsheimer's Coleoptera*, *Osten Sacken's Diptera*, and *Morris's Lepidoptera*, is very much wanted, and would be of great assistance to the student, as a basis to work upon.

The descriptions of our Hymenoptera are scattered through the Transactions of learned Societies, Scientific Journals, Pamphlets and other publications difficult of access, and presenting a serious obstacle to any one endeavouring to identify specimens.

Therefore, as it is not certain when the expected work of *M. Saussure*, on the *Hymenoptera of North America*, will appear, I propose to publish in the Proceedings of the Entomological Society, a series of Catalogues of our species, commencing with the Saw-flies, and to continue on with a list of the other families, as my time will permit, or until Saussure's work appears. This plan will enable the student to commence operations forthwith, and may also be the means of encouraging others to study and collect.

Many omissions will doubtless be found, owing either to the unaccessibility of some publications, or to others having in some way escaped observation.

I have not attempted to determine the conflicting synonymes, either generic or specific, but have merely given the names, with references to the original descriptions, and where figured.

The species within each genus, have been placed in alphabetical order, so as to facilitate reference.

All species marked simply "America," or those of which the locality is unknown, have been omitted. In a few instances, I have included European species, as they have been found in this country; in such cases, reference to the authority is given.

I have considered it useful to include the species contained in *Dr. Harris's Catalogue of the insects of Massachusetts*, many of which have never been described, or have been so since, under other names, as may be observed in the able paper of *Mr. Edward Norton*, on the genus *Allantus* in the United States, published in the *Journal of the Boston Society of Natural History*, 1860, p. 236.



Now as Mr. Norton has commenced the good work of monographing our species, it is to be hoped that every collector will realize the importance of extending to him every assistance and encouragement in their power, so that he may be able to continue his useful labors.

The sooner this is done, the sooner our collections will be properly named and classified.

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### Fam. TENTHREDINIDÆ.

#### CIMBEX, Fabr.

- americana*, Leach. Zoological Miscellany, vol. 3, p. 104. Georgia.  
*Dahlbomii*, Guér. Cuvier, Icon. Règne Animal, p. 398; Ins. tab. 64, fig. 1. N. Amer.  
*decem-maculata*, Leach, Zoological Miscellany, vol. 3, p. 106. Curtis, British Entomology, vol. 1, tab. 41. (Europe.) D'Urban, Zoologist, vol. 18, p. 7085. Canada.  
*Kirbyi*, St. Farg. Hist. Nat. des Ins. Hym. vol. 4, p. 672; tab. 48, fig. 6. N. America.  
*Klugii*, Leach, Zoological Miscellany, vol. 3, p. 105. Saint Domingo.  
*luctifera*, Klug. Verhandlungen, p. 85. Georgia.  
*Mac-Leayi*, Leach, Zoological Miscellany, vol. 3, p. 103. Saint Domingo.  
*Ulmi*, Peck, MSS. Emmons, Natural History of New York, Agriculture, vol. 5, p. 191; tab. 26, fig. 11. United States.

#### TRICHIOSOMA, Leach.

- triangulum*, Kirby. Fauna Boreali-Americana, vol. 4, p. 254. Canada.

#### ABIA, Leach.

- Cerasi*, Fitch. Third Report on the Noxious Insects of New York, p. 67. N. York.

#### ACORDULECERA, Say.

- dorsalis*, Say. Boston Journal of Natural History, vol. 1, p. 210. Indiana.

#### HYLOTOMA, Latr.

- abdominalis*, Leach, Zoological Miscellany, vol. 3, p. 123. Georgia.  
*analis*, Leach, Zoological Miscellany, vol. 3, p. 123. Georgia.  
*biramosa*, Klug. Jahrbücher der Insectenkunde, vol. 1, p. 242. Mexico.  
*calcanes*, Say. Boston Journal of Natural History, vol. 1, p. 211. United States.  
*coccinea*, Fabr. Systema Piezatorum, p. 24. Carolina.  
*concinna*, Klug. Jahrbücher der Insectenkunde, vol. 1, p. 246. Mexico.  
*dorsalis*, Klug. Jahrbücher der Insectenkunde, vol. 1, p. 236. Mexico.  
*dulciaria*, Say, Long's Second Expedition, vol. 2, p. 314. North-west Territory.  
*erythrosoma*, Leach, Zoological Miscellany, vol. 3, p. 124. Georgia.  
*fusca*, Klug. Jahrbücher der Insectenkunde, vol. 1, p. 247. Mexico.  
*humeralis*, Beauv. Ins. rec. Afr. et Am. p. 99; Hym. tab. 9, fig. 6. United States.  
*lepida*, Klug. Jahrbücher der Insectenkunde, vol. 1, p. 239. Mexico.  
*Mac-Leayi*, Leach, Zoological Miscellany, vol. 3, p. 122. Georgia.

**pectoralis**, *Leach*, Zoological Miscellany, vol. 3, p. 124. North America?  
**peccella**, *Klug*, Jahrbücher der Insectenkunde, vol. 1, p. 239. Mexico.  
**procera**, *Klug*, Jahrbücher der Insectenkunde, vol. 1, p. 235. Mexico.  
**scutellata**, *Say*, Boston Journal of Natural History, vol. 1, p. 211. United States.  
**versicolor**, *Klug*, Jahrbücher der Insectenkunde, vol. 1, p. 246. Mexico.  
**santhothorax**, *Leach*, Zoological Miscellany, vol. 3, p. 124. North America?

#### ATOMACERA, Say.

**cellularis**, *Say*, Boston Journal of Natural History, vol. 1, p. 213. Indiana.  
**debilis**, *Say*, Boston Journal of Natural History, vol. 1, p. 212. Indiana.

#### CRYPTUS, Leach.

**Klugii**, *Leach*, Zoological Miscellany, vol. 3, p. 125. Georgia.

#### THULEA, Say.

**nigra**, *Say*, Boston Journal of Natural History, vol. 1, p. 214. Mexico.

#### SCHIZOCERA, Latr.

**calceola**, *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.

#### SELANDRIA, Leach.

**barda**, *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
**Cerasi**, *Peck*, Natural History of the Slug worm, Boston, 1799. Massachusetts.  
**halcyon**, *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
**Juglandis**, *Fitch*, Third Report on the Noxious Insects of New York, p. 149. N. Y.  
**pygmaea**, *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
**Rosea**, *Harris*, Treatise on Insects, p. 380. Massachusetts.  
**Vitis**, *Harris*, Treatise on Insects, p. 378. Massachusetts.

#### ALLANTUS, Panz.

**abdominalis**, *Norton*, Boston Journal of Natural History, 1860, p. 238. Conn.  
**albomaculatus**, *Norton*, Boston Journal of Natural History, 1860, p. 256. Me. Conn.  
**angulifer**, *Norton*, Boston Journal of Natural History, 1860, p. 252. Me. N. H. N. Y.  
**apicalis**, *Say*, Boston Journal of Natural History, vol. 1, p. 216. Indiana.  
**atroviolaceus**, *Harris*, Catalogue. *Norton*, Boston Journal of Natural History, 1860, p. 255. Maine, Massachusetts, and Connecticut.  
**bardus**, *Say*, Boston Journal of Natural History, vol. 1, p. 218. Indiana.  
**bicinctus**, *Norton*, Boston Journal of Natural History, 1860, p. 241. United States.  
**bifasciatus**, *Say*, Western Quarterly Reporter, vol. 2, p. 72. Arkansas.  
**cestus**, *Say*, Boston Journal of Natural History, vol. 1, p. 216. United States.  
**coronatus**, *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
**dejectus**, *Norton*, Boston Journal of Natural History, 1860, p. 249. New York.  
**dissimilis**, *Norton*, Boston Journal of Natural History, 1860, p. 250. Nth. Illinois.  
**dubius**, *Harris*, Catalogue. *Norton*, Boston Journal of Natural History, 1860, p. 241. Massachusetts.  
**epicera**, *Say*, Boston Journal of Natural History, vol. 1, p. 216. Indiana.  
**epinotus**, *Say*, Boston Journal of Natural History, vol. 1, p. 215. Indiana.  
**externus**, *Say*, Western Quarterly Reporter, vol. 2, p. 72. Missouri.  
**flavicoxus**, *Norton*, Boston Journal of Natural History, 1860, p. 258. Conn. Me.  
**flavolineatus**, *Norton*, Boston Journal of Natural History, 1860, p. 259. Conn.  
**flavomarginis**, *Norton*, Boston Journal of Natural History, 1860, p. 254. Conn.

*goniphorus*, *Say*, Boston Journal of Natural History, vol. 1, p. 215. Indiana.  
*grandis*, *Norton*, Boston Journal of Natural History, 1860, p. 239. Connecticut.  
*incertus*, *Norton*, Boston Journal of Natural History, 1860, p. 258. Connecticut.  
*intermedius*, *Norton*, Boston Journal of Natural History, 1860, p. 242. Mass. Conn.  
*leucostoma*, *Kirby*, Fauna Boreali-Americana, vol. 4, p. 256. America-borealis.  
*lobatus*, *Norton*, Boston Journal of Natural History, 1860, p. 253. Connecticut.  
*marginicollis*, *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition.  
*medius*, *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*mellisoma*, *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*mellinus*, *Harris*, MSS. *Norton*, Boston Journal of Natural History, 1860, p. 248. Me.  
*mellosus*, *Norton*, Boston Journal of Natural History, 1860, p. 237. Conn. Penn.  
*niger*, *Norton*, Boston Journal of Natural History, 1860, p. 239. Conn. Penn.  
*obesus*, *Say*, *Harris's Catalogue*. *Norton*, Boston Journal of Natural History, 1860, p. 260. Massachusetts.  
*pallipes*, *Say*, Western Quarterly Reporter, vol. 2, p. 72. Missouri.  
*pannosus*, *Say*, Boston Journal of Natural History, vol. 1, p. 217. Indiana.  
*piecocolinetus*, *Norton*, Boston Journal of Natural History, 1860, p. 249. New York.  
*pinguis*, *Norton*, Boston Journal of Natural History, 1860, p. 244. Conn. Mass.  
*rufescens*, *Norton*, Boston Journal of Natural History, 1860, p. 245. Maine.  
*rufocolinetus*, *Norton*, Boston Journal of Natural History, 1860, p. 248. N. H. Conn.  
*rufopictus*, *Norton*, Boston Journal of Natural History, 1860, p. 255. Conn. Penn.  
*sambuci*, *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*signatus*, *Norton*, Boston Journal of Natural History, 1860, p. 247. Maine.  
*taeius*, *Say*, *Harris's Catalogue*. *Norton*, Boston Journal of Natural History, 1860, p. 246. Massachusetts, and Connecticut.  
*tardus*, *Say*, *Harris's Catalogue*. *Norton*, Boston Journal of Natural History, 1860, p. 246. Massachusetts, and Connecticut.  
*tricolor*, *Harris*, MSS. *Norton*, Boston Journal of Natural History, 1860, p. 247. Me.  
*trisyllabus*, *Say*, *Harris's Catalogue*. *Norton*, Boston Journal of Natural History, 1860, p. 238. Massachusetts, and Connecticut.  
*trosulus*, *Say*, *Harris's Catalogue*. *Norton*, Boston Journal of Natural History, 1860, p. 244. Massachusetts, and Connecticut.  
*varius*, *Norton*, Boston Journal of Natural History, 1860, p. 240. Connecticut.  
*ventralis*, *Say*, Western Quarterly Reporter, vol. 2, p. 71. Arkansas.

#### TENTHREDO, Linn.

*articulata*, *Klug*, (EMPHYTUS) Berlin Magazin, 1814, p. 284. Baltimore.  
*basilaris*, *Say*, Long's Second Expedition, vol. 2, p. 316. North-west Territory.  
*bicolor*, *Beauv.* Ins. rec. Afr. et Am. p. 97; Hym. tab. 9, fig. 1. United States.  
*clavicornis*, *Fabr.* Entomologia Systematica, vol. 2, p. 108. North America.  
*cordigera*, *Beauv.* Ins. rec. Afr. et Am. p. 97; Hym. tab. 9, fig. 4. United States.  
*femorata*, *Linn.* Syst. Nat. 2, p. 920. *Kirby*, Fauna Bor. Amer. 4, p. 254. Am. bor.  
*formosa*, *Klug*, (ALLANTUS) Berlin Magazin, 1814, p. 115. Georgia.  
*labiata*, *Klug*, (ALLANTUS) Berlin Magazin, 1814, p. 73. Georgia.  
*litara*, *Klug*, (ALLANTUS) Berlin Magazin, 1814, p. 83. Georgia.  
*lucorum*, *Linn.* Systema Naturæ, vol. 2, p. 921. *Kirby*, Fauna Boreali-Americana, vol. 4, p. 225. America-borealis.  
*obtusæ*, *Klug*, (ALLANTUS) Berlin Magazin, 1814, p. 55. Georgia.  
*proxima*, *Klug*, (ALLANTUS) Berlin Magazin, 1813, p. 130. Baltimore.  
*pulchella*, *Klug*, (ALLANTUS) Berlin Magazin, 1814, p. 121. Georgia.  
*pygmaea*, *Say*, Long's Second Expedition, vol. 2, p. 318. United States.

*rubiginosa*, *Beauv.* Ins. rec. Afr. et Amér. p. 98; Hym. tab. 9, fig. 5. United States.  
*rufipes*, *Say*, Long's Second Expedition, vol. 2, p. 317. North-west Territory.  
*septentrionalis*, *Linn.* Systema Naturæ, vol. 1, p. 926. *Curtis*, (cæsus) British Entomology, vol. 1, tab. 17. (Europe). *Harris*, (cæsus) Catalogue of the Insects of Massachusetts, 2nd edition. Massachusetts.  
*terminalis*, *Say*, Long's Second Expedition, vol. 2, p. 318. United States.  
*thoracina*, *Beauv.* Ins. rec. Afr. et Amér. p. 97; Hym. tab. 9, fig. 3. United States.  
*unicolor*, *Beauv.* Ins. rec. Afr. et Amér. p. 97; Hym. tab. 9, fig. 2. United States.  
*verticalis*, *Say*, Long's Second Expedition, vol. 2, p. 317. North-west Territory.

#### DOSYTHEUS, Leach.

*aprica*, *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.

#### DOLERUS, Jurine.

*arvensis*, *Say*, Long's Second Expedition, vol. 2, p. 319. United States.  
*cellaris*, *Say*, Western Quarterly Reporter, vol. 2, p. 72. Missouri.  
*inornatus*, *Say*, Long's Second Expedition, vol. 2, p. 319. United States.  
*sericeus*, *Say*, Long's Second Expedition, vol. 2, p. 320. United States.

#### EMPHYTUS, Leach.

*aperta*, *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*mellipes*, *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*platycerus*, *Say*, Boston Journal of Natural History, vol. 1, p. 220. Indiana.  
*recessus*, *Say*, Boston Journal of Natural History, vol. 1, p. 220. Indiana.  
*semicornis*, *Say*, Boston Journal of Natural History, vol. 1, p. 220. Indiana.  
*tarsatus*, *Say*, Boston Journal of Natural History, vol. 1, p. 219. Indiana.

#### HEMATUS, Jurine.

*fulvipes*, *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*integer*, *Say*, Boston Journal of Natural History, vol. 1, p. 218. Indiana.  
*labrata*, *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*longicornis*, *Say*, Boston Journal of Natural History, vol. 1, p. 218. Indiana.  
*melanocephala*, *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition.  
*monochroma*, *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*pallicornis*, *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*stigmata*, *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*suratus*, *Fitch*, Third Report on the Noxious Insects of New York, p. 68. N. York.  
*ventralis*, *Say*, Long's Second Expedition, vol. 2, p. 315. United States.  
*vertebratus*, *Say*, Boston Journal of Natural History, vol. 1, p. 218. Indiana.

#### GLADIUS, Klug.

*isomera*, *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.

#### LOPHYRUS, Latr.

*Abbotii*, *Leach*, Zoological Miscellany, vol. 3, p. 120. Georgia.  
*abdominalis*, *Say*, Long's Second Expedition, vol. 2, p. 315. North-west Territory.  
*Abietis*, *Harris*, Treatise on Insects, p. 376. Massachusetts.  
*americanus*, *Leach*, Zoological Miscellany, vol. 3, p. 120. Georgia.  
*compar*, *Leach*, Zoological Miscellany, vol. 3, p. 121. Georgia.  
*Fabricii*, *Leach*, Zoological Miscellany, vol. 3, p. 120. Georgia.

*flavida*, *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*Lecontei*, *Fitch*, Fourth Report on the Noxious Insects of New York, p. 58. N. York.

#### TARPA, Fabr.

*scripta*, *Say*, Long's Second Expedition, vol. 2, p. 312. Arkansas. N. W. Territory.

#### LYDA, Fabr.

*amplecta*, *Fabr.* Systema Piesatorum, p. 46. Carolina.  
*calceata*, *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*circumcincta*, *Klug*, Berlin Magazin, 1808, p. 279. Georgia.  
*maculiventris*, *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition.  
*ochrocera*, *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*occreata*, *Say*, Boston Journal of Natural History, vol. 1, p. 222. Indiana.  
*plagiata*, *Klug*, Berlin Magazin, 1808, p. 278; tab. 7, fig. 6. Baltimore.  
*rufofasciata*, *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*teselata*, *Klug*, Berlin Magazin, 1808, p. 276; tab. 7, fig. 4. Georgia.

#### CEPHUS, Latr.

*abbreviatus*, *Say*, Long's Second Expedition, vol. 2, p. 314. Pennsylvania.  
*filicornis*, *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*heteropterus*, *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*integer*, *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*mexicanus*, *Gutrin*, in Cuvier's Iconographie du Règne Animal, 3, p. 403. Mexico.  
*trimaoulatus*, *Say*, Long's Second Expedition, vol. 2, p. 313. Pennsylvania.

#### XYLEA, Dalm.

*ferruginea*, *Say*, Long's Second Expedition, vol. 2, p. 310. Arkansas.  
*infuscata*, *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.



#### ADDITIONS.

The following species of *HYLOTOMA* (p. 34), were accidentally omitted :

#### HYLOTOMA, Latr.

*miniata*, *Klug*, Berlin Magazin, 1814, p. 298. North America.  
*plumigera*, *Klug*, Berlin Magazin, 1814, p. 306. New York.  
*rubra*, *Klug*, Berlin Magazin, 1814, p. 299. New York.  
*sanguinea*, *Klug*, Berlin Magazin, 1814, p. 299. Georgia.  
*scapularis*, *Klug*, Berlin Magazin, 1814, p. 298. Baltimore.  
*virescens*, *Klug*, Berlin Magazin, 1814, p. 296. Georgia.

## Fam. UROCERIDÆ.

**XIPHYDRIA**, Latr.

- abdominalis**, Say, Long's Second Expedition, vol. 2, p. 311. Pennsylvania.  
**albicornis**, Harris, Treatise on Insects, p. 392. Massachusetts.  
**basalis**, Say, Boston Journal of Natural History, vol. 1, p. 222. Indiana.  
**maculata**, Say, Boston Journal of Natural History, vol. 1, p. 221. Indiana.  
**mellipes**, Harris, Treatise on Insects, p. 393. Massachusetts.  
**tibialis**, Say, Long's Second Expedition, vol. 2, p. 312. Pennsylvania.

**SIREX**, Linn.

- albicornis**, Fabr. Entomologia Systematica, vol. 2, p. 127. Emmons, Natural History of New York, Agriculture, vol. 5, tab. 32, fig. 3 (♀). United States.  
**bisonatus**, Stephens, British Entomology, vol. 7, p. 114; tab. 36, fig. 2. (Europe). Kirby, Fauna Boreali-Americana, vol. 4, p. 256. Canada.  
**cinetus**, Drury, History of Insects, vol. 2, p. 72; tab. 38, fig. 2. New York.  
**Columba**, Linn. Systema Naturæ, vol. 2, p. 929. Say, American Entomology, tab. 32. United States.  
**cyanea**, Fabr. Entomologia Systematica, vol. 2, p. 127. North America.  
**dimidiatus**, Westwood. D'Urban, Zoologist, vol. 18, p. 7085. Canada.  
**duplex**, Shuckard, Magazine of Natural History, new series, vol. 1, p. 631. Ingepen, Transactions Entomological Society of London, vol. 2, p. lxxxii. Canada?  
**flavicornis**, Fabr. Entomologia Systematica, vol. 2, p. 126. Labrador.  
**Juvenus**, Linn. Systema Naturæ, vol. 2, p. 929. Curtis, British Entomology, vol. 6, tab. 253. (Europe). Kirby, Fauna Boreali-Americana, vol. 4 p. 257.  
**nigricornis**, Fabr. Entomologia Systematica, vol. 2, p. 125. North America.  
**Pennsylvanica**, Degeer, Histoire des Insectes, vol. 3, p. 393, part 1, tab. 30, fig. 13. United States.

**UROCERUS**, Geoff.

- abdominalis**, Harris, Treatise on Insects, p. 392 (♂). Massachusetts.  
**nitidus**, Harris, Treatise on Insects, p. 391 (♀). Massachusetts.

**TREMIX**, Jurine.

- obsoletus**, Say, Western Quarterly Reporter, vol. 2, p. 73; American Entomology, tab. 32. Missouri.  
**sericeus**, Say, Western Quarterly Reporter, vol. 2, p. 73; American Entomology, tab. 32. Missouri.  
**Servillei**, St. Farg. Histoire Naturelle des Insectes, (Suites à Buffon) Hyménoptères, vol. 4, p. 645; tab. 45, fig. 2. North America.

**ORYSSUS**, Latr.

- affinis**, Harris, Treatise on Insects, p. 394. Massachusetts.  
**hæmorrhoidalis**, Harris, Treatise on Insects, p. 394. Massachusetts.  
**maurus**, Harris, Treatise on Insects, p. 394. Massachusetts.  
**Sayi**, Westwood, Zoological Journal, vol. 5, p. 440. Indiana.  
**terminalis**, Newman, Entomological Magazine, vol. 5, p. 486. North America.



PROCEEDINGS  
OF THE  
ENTOMOLOGICAL SOCIETY  
OF PHILADELPHIA.

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VOL. 1.      SEPTEMBER AND OCTOBER, 1861.      No. 3.

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STATED MEETING, SEPTEMBER 9.

President NEWMAN in the Chair.

Twelve members present.

REPORT OF COMMITTEE.

The Committee on Dr. Horn's paper read August 12th, reported in favor of its publication in the Proceedings of the Society.

DONATIONS TO CABINET.

40 specimens of *Hemiptera*, 22 *Hymenoptera*, and 5 *Orthoptera*, presented by Dr. George H. Horn.

52 specimens of *Coleoptera*, embracing many rare and beautiful species, among which is a fine specimen of *Cicindela abdominalis* Fabr., presented by James H. B. Bland.

22 specimens of *Diptera*, presented by Dr. T. B. Wilson.

4 specimens of *Hymenoptera*, 1 *Orthoptera*, and 1 *Coleoptera*, presented by William Evett.

Total,—147 specimens.

DONATION TO LIBRARY.

*Proceedings of the Society for June, July and August*, from the Publication Committee.



## WRITTEN COMMUNICATIONS.

A communication was read from Dr. Leconte announcing that during the months of July and August, at Bedford Springs, in Bedford Co. Pa., he collected the following species of Coleoptera, of unusual occurrence:

*Chlœnius chlorophanus*. *Chlœnius prasinus*. *Cedius Ziegleri*, *Bryaxis longulus*, *Batrissus globosus*, *Euryusa n. sp.*, and *Homalota? n. sp.*, all in the hills formed by a species of ant of a brown color, with a piceous abdomen. *Bryoporus* ———. *Rhyssodes conjungens*. *Bacanius tantillus*. *Helichus fastigiatus*. *Helichus lithophilus*, very abundant, flying at night; and also under stones beneath the water of streams. *Serica iricolor*. *Cupes capitata*. *Xyletinus n. sp.* *Trypophytus sericeus*. *Oligomerus errans*. *Myodites fasciata*, on *Solidago*. *Brachytarsus tomentosus*.

Also a communication from Mr. Newman, calling the attention of the members to specimens of the larvæ of *Dryocampa imperialis*, and *Ceratocampa regalis*, exhibited by him this evening. The larvæ of *Dryocampa imperialis* varies very much in color, some being a beautiful green, and others jet black. The perfect insect also varies, some specimens being darker than others. He also states that he has bred 28 larvæ of *Ceratocampa regalis*, most of which have gone into the ground to transform, and to appear as perfect insects in July next.

Also a communication from Mr. Bland, reporting the capture of the following Coleoptera: *Cicindela abdominalis* was found running on a white sandy road in Atlantic County, N. J., on the 4th of last month.

On the 25th of August, in Camden County, N. J., he found *Euryomia inda* abundant on *Vernonia novemboracensis*; also *Tritoma biguttata* abundant in fungi.

Mr. Bland also states that from his experience in collecting aquatic Coleoptera during the past two months, he has found the early part of August the best time. The plan he adopted was to gather the moss and weeds from the sides of swamps, and wash them in a close muslin net. Collectors will thus find their labors rewarded by many minute species which cannot be otherwise obtained.

Also a communication from Mr. Creason, stating his belief that there are two broods of *Sphyracephala brevicornis* during the year. It suddenly reappeared on the 20th of August in the same locality as before reported, but on grass and weeds instead of skunk cabbage, which had disappeared.

The best time to collect them is at sundown, by sweeping with a net, the grass and weeds growing in a damp and shady situation; at this time they are quite inactive and easy to capture.

The following paper was presented for publication in the Proceedings, entitled " On the Cynipidæ of the North American Oaks and their Galls, by Baron R. Osten Sacken. "

And was referred to a Committee.

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**Observations on the Habits of some Coleopterous Larvæ and Pupæ.**

BY GEORGE H. HORN.

*Fornax badius*, (*Mels.*)—Numerous specimens of the larvæ and pupæ of this insect were taken by me during the month of June. It lives in the stumps of Oak trees which are undergoing a state of dry decay.

The larvæ are very curious in their general appearance. Both extremities are very much flattened. The anterior is also obtusely pointed, while the posterior extremity is broadly dilated. When about to assume the pupa, it becomes doubled upon itself, becoming U-shaped. The larva skin splits opposite thoracic portion of the pupa, and the pupa commences to contract. The pupa measures in length about three-eighths of an inch while the larva is fully one inch long. It remains in pupa two weeks. This insect like the genuine *Elatridæ*, has the power of leaping when placed on its back, it also makes the peculiar clicking sound when the abdomen is held between the fingers.

My first specimens of this interesting larva were received from my friend Mr. W. M. Gabb, to whom I am indebted for many interesting specimens and much valuable information.

*Orthostethus infuscatus*, (*Germ.*)—I found the pupa of this insect in the centre of a large decaying Chestnut log. Owing to some mismanagement, I was unable to rear the specimen. Hence its periods have not been observed.

*Parandra brunnea*, (*Fabr.*)—The larvæ of this insect may be seen in almost every locality in which decaying wood may be found. It appears to prefer Beech wood, at least I have always found greater numbers in that particular kind of wood. The larvæ are at first very much elongated, the head and thoracic segment being broad and flattened.

It finally contracts to about one half its former length, and becomes thicker. As pupa it exists about two weeks.

*Goes pulverulenta*, (*Huld.*)—This insect is very destructive to living Beech trees. It bores into those branches which are about three

inches in diameter. The length of its channel is about eight inches.

The specimens of wood containing this insect, were first obtained by Mr. George Newman, from the neighborhood of Germantown.

*Doryphora trimaculata*, (*Fabr.*)—The larvæ of this insect may be taken during the latter weeks of July, and the early weeks of August, feeding on the leaves of the *Asclepias Phytolaccoides*. It is nearly hemispherical in shape and of a light orange color, with the exception of the thoracic portion which is nearly black. A row of black spots on each side, marks the position of the spiracles. The pupæ require about a week to perfect themselves.

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## STATED MEETING, OCTOBER 14.

President NEWMAN in the Chair.

Fifteen members present.

### REPORT OF COMMITTEE.

The Committee on Baron Osten Sacken's paper read September 9th, reported in favor of its publication in the Proceedings of the Society.

### DONATIONS TO CABINET.

- 713 specimens of *Coleoptera*, presented by J. D. Wingate.
- 320 specimens of *Coleoptera*, presented by Henry Ulke.
- 12 specimens of *Diptera*, presented by Dr. T. B. Wilson.
- 7 specimens of *Diptera*, presented by William Evett.
- 4 specimens of *Hymenoptera*, 3 *Hemiptera*, and 3 *Coleoptera*, presented by James H. B. Bland.
- 5 specimens of *Lepidoptera*, presented by George Hill.
- 5 specimens of *Lepidoptera*, presented by Charles Wilt.
- 4 specimens of *Coleoptera*, presented by Henry Feldman.
- Total,—1076 specimens.

### DONATIONS TO LIBRARY.

*Species général des Lépidoptères, Deltoïdes et Pyralites. Par M. A. Guénéé. Paris, 1854.*

*Catalogue of British Lepidoptera in the Collection of the British Mus-*

*um.* By James Francis Stephens. London, 1856. Presented by J. W. Wiedemeyer.

*Proceedings of the Boston Society of Natural History*, Vol. 8, pages 97—192. From the Society.

*Prairie Farmer* (Chicago, Ill.), Vol. 8, Nos. 13 and 14. From the Editors.

*Catalogue of several genera of the Tenthredinidæ in the United States.* By Edward Norton. Boston, 1861. From the Author.

#### WRITTEN COMMUNICATIONS.

A communication was read from Mr. Bland, reporting the capture of the following Coleoptera since the 1st instant:—*Cychrus stenostomus* in rotten logs. *Oxyporus major*, *Oxyporus lateralis*, and *Cryptobium bicolor* in fungi. *Necrophorus velutinus* under carrion at Schuylkill Heights.

The following paper was presented for publication in the Proceedings, entitled "Micro-Lepidopterous Larvæ. Notes on a few species, the imagoes of which, are probably undescribed, by Brackenridge Clemens, M. D."

And was referred to a Committee.

#### VERBAL COMMUNICATION.

Mr. Bland called the attention of the members to specimens of *Pytho niger* presented by him this evening. They were taken near Stroudsburg, Pa., during the last week of September, under the bark of Pine logs; they can be taken later in the season, as many were observed to be in the pupa state at that time. The specimens were collected by Mr. C. F. Parker, and until now, have been rarely observed.

#### PROPOSALS AND ELECTIONS.

Propositions No. 47 and 49 for membership were read.

The following gentlemen were then elected Correspondents, viz:—

Stephen Calverley, of Brooklyn, New York.

Edward Norton, of Farmington, Connecticut.

A. S. Packard, Jr., of Brunswick, Maine.

Benjamin D. Walsh, of Rock Island, Illinois.

William Le Baron, M. D., of Geneva, Kane Co. Illinois.

Isaac A. Pool, of Chicago, Illinois.

Samuel H. Scudder, of Boston, Massachusetts.

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The following reports, made by members, of captures of insects, were read before the Society at various times before the commencement of publication, and are now ordered to be published:—

Communication from Mr. Ridings, read August 9th 1859, reporting the capture of the following Coleoptera in Northern Virginia during July:—

*Dynastes Tityus*, was found abundantly on the limbs of the Ash tree, on the last day of July, near the banks of the Shenandoah River, a short distance from Front Royal, in Warren County. Also *Cychrus Andrewsii*, *Cychrus viduus*, and *Nomaretus n. sp.*,\* under stones on the Alleghany Mountains in Hampshire County.

Communication from Mr. Cox, read September 28th 1859, reporting the capture of the following Coleoptera in the vicinity of Lewistown, Mifflin County, Pennsylvania, during the summer of 1859:—

*Pasimachus depressus*. *Dicælus dilatatus*. *Temnochila virescens*. *Hololepta fossularis*. *Acanthocerus aphodioides*. *Osmoderma scabrum*. *Trichius bibens*. *Adelocera impressicollis*. *Alaus myops*. *Sericosomus silaceus*. *Dolopius oblongicollis*. *Megapenthes limbata*. *Ludius attenuatus*. *Ancylochira fasciata*. *Ancylochira lineata*. *Ptosima gibbicollis*. *Trichodes apivorus*. *Dorcaschema nigrum*. *Toxotus cylindricollis*. *Toxotus vittiger*. *Glyptoscelis hirta*. *Cassida cruciata*.

Communication from Mr. Bland, read October 24th 1859, reporting the capture of the following Coleoptera:—

On May 29th, at Chester, Pa., found 8 specimens of *Listroderes*—— on the plantain, at the junction of the stem and the root.

On June 5th, captured specimens of *Cistela erythroptera* on the blossoms of the Tulip-poplar; also *Lebia viridis*, *Lebia ornata*, *Lebia vittata*, and *Lebia scapularis*, collected with the beating net.

On October 2nd, obtained specimens of *Monocrepidius bellus* and *Monocrepidius auritus* under stones on hill-sides facing south and east; also found specimens of *Conotrachelus*—— in abundance on newly cut timber.

Communication from Mr. William S. Wood, read November 12th 1860, reporting that he observed the larvæ of *Saturnia maia* Drury, in broods of 50 to 75 in each, feeding on the scrubby oak near the sea shore; they feed together until the third changing of their skins when they commenced to scatter. They went into the ground on the last of August, 1859, and became a perfect insect on October 10th 1860.

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\* This species has since been described and figured by Dr. Horn in the Proceedings of the Academy of Natural Sciences in Philadelphia, Vol. 8, p. 569, tab. 8, fig. 1, as *Nomaretus imperfectus*.

On the *CYNIPIDÆ* of the North American Oaks and their Galls.

BY BARON R. OSTEN SACKEN.

The study of the galls or deformations produced by insects on different plants, is one of the most interesting subjects in entomology and this interest belongs especially to the numerous and varied galls produced by the *Cynipidæ*, principally on the oak. Still, the difficulties attending the study of the habits of the *Cynipidæ* are so great, the peculiarity and, I may say, the intricacy of these habits is so extraordinary, that the most important questions concerning them remain as yet unsolved. This is so true that it is not yet positively known, for instance, whether a considerable portion of the species of *Cynipidæ* have any males or not, or what their mode of reproduction is.

The chief reason of the difficulty of this study is the close and persistent observation of nature it requires. Here, it is not sufficient to collect at random, in order to work out at leisure the materials thus obtained; here one has to watch the growth of the gall on the tree for weeks and months; in order to be enabled to make certain observations, one is bound to a certain season of the year and a certain locality and if the season is missed or the locality cannot be reached at the requisite time, one has to wait a year before the observations can be renewed. Few entomologists are so favorably situated as to pursue a study of this kind for a sufficiently long period of time and with such success, as to give the results thus obtained a shape of relative completeness and the knowledge of the galls of *Cynipidæ* would make but little progress, if the gradual accumulation of single and scattered observations of different observers did not supply in some measure the place of a persistent and systematic study. Such scattered observations are therefore of the greatest value and entomologists cannot be too much encouraged to publish them, or to communicate them to others for publication. The value of such single observations depends chiefly on their accuracy; that is, the observer must see well and render *only what he has seen*; a condition much more difficult to comply with, in matters of natural history especially, than is usually imagined.

The aim of the present article is to publish certain observations which the author may not be in a position to continue. At the same time, a synopsis of the previous observations on the North American oak-galls is given.

One of the difficulties which obstruct the study of the *Cynipidæ* is the imperfection of their classification. Notwithstanding the great difference in their habits, the variety in the structural characters seems to be very limited. Up to the present time the chief stress has been laid on char-

acters of a very indefinite nature, namely, the comparative length of the second and third segments of the body and the relative length of the radial area.

Hartig, the monographist of the family, ( Ueber die Familie der Gallwespen in Germar's Zeitschrift für Entomologie, Vol. II, and Supplements in Vol. III and IV) has published a mere sketch of a classification, promising at the same time to issue a more detailed work, which however has never been published. Thus, the genera he has established remain very insufficiently defined and are difficult to recognize. I have been hardly able to place a few of the species in my possession in the new genera of Hartig, which circumstance may be only partly accounted for by the peculiarity of the american fauna.

Hartig's principal divisions are these :

- A. Second (\*) abdominal segment longer than the others. (*Cynipidæ*.)
  - I. Radial area narrow ; areolet opposite its base.
  - II. Radial area broad, short ; areolet opposite its middle.
- B. Third (\*) abdominal segment longer than the others. (*Figitidæ*.)
- C. Segments of the abdomen of equal length. (Genus *Ibalia*, also belonging to *Figitidæ*.)

In the recently published monograph of the *Figitidæ* by Mr. Reinhardt (Berl. Entom. Zeitschr. 1860) he modifies the characters of the *Figitidæ* by saying : second segment of the abdomen shorter than half its length.

Accordingly, the character of the *Cynipidæ* would be : second segment etc, longer than half its length. *Ibalia* Latr., Mr. Reinhardt separates as a distinct family, *Ibaliidæ* Blanch.

The further subdivision into genera is based principally on the sculpture of the body and the number of joints of the palpi. As stated above, I have not been able to place most of my species in these genera, and have confined myself therefore to indicating to which of the three groups, or sections of the first group they belong. The two sections of the group A (*Cynipides*) are easy enough to distinguish by the form of the radial area and the position of the areolet ; still there are cases in which this distinction even is difficult to make.

In my descriptions I have tried therefore to supply my inability to define the genus of most of my species by a careful description of those parts of the body (neurulation, relation of the segments of the abdomen, structure

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\* Instead of *second* and *third* segment, Hartig calls them *first* and *second*. But in reality, the anterior portion of the abdomen forming a narrow neck or petiole is the first segment. I have followed the more correct terminology in my descriptions.

and number of joints of the antennæ), which are important for classification.

Another division, introduced by Hartig is based upon the habits of the insect only, without a corresponding structural character to distinguish them.

Almost all the insects of Section I (with a narrow radial area and basal areolet) and some of Section II, (with a short, broad radial area and intermediate areolet) are called by him *true gall-flies* (*Psenides*), they being the originators of the galls. A part of the Cynipidæ of Section II, and a few of Section I, are *merely parasites* in the galls produced by the gall-flies of the first division. Hartig calls them *Inquilinæ*. A third division (called *the parasites* by Hartig) is formed of the rest of Section II and the whole group of *Figitidæ*. "The habits of this division, says Hartig, are little known; some, as *Xystus* Hartig (*Allotria* Westw.) live parasitically in *Aphides*; others in larvæ of diptera."

That these differences exist in nature is certain; but a great deal remains to be done yet before attempting a natural distribution of the known genera and species on this basis. It seems hardly probable for instance that species of the same genus (as stated by Hartig about *Neuroterus*), should sometimes be true gall-producers, sometimes parasites.

It will be seen below that I have reared from galls several species, the characters of which are those of *Figitidæ* and which ought therefore to belong to the first or second and not to the third of Hartig's divisions, where the *Figitidæ* are placed. Again about the true relation of the *Inquilinæ* to the *Psenides*, their food, the mode of introducing their eggs into foreign galls etc., nothing is known and *not a single direct observation seems to be extant*. The fact of their parasitism is therefore merely inferred from the circumstance of their having been reared from the same galls.

Another unsettled and greatly vexed question with reference to gall-flies is that of their sexes. According to Hartig, all gall-flies of the second and third division (*Inquilinæ* and *Parasites*) and some of the *Psenides*, (the genera *Trigonaspis*, *Spathegaster*, *Teras* and *Andricus*) occur in both sexes. The remainder of the *Psenides* (the genera *Cynips* and *Apophyllus* Hartig, Syn. *Biorhiza* Westw.) are known in the female sex only.

*Neuroterus* has again an intermediate position; those species of this genus which are gall-producers, were known to Hartig in the female sex only, whereas he possessed a male of one of the species belonging to the *Inquilinæ*.

Hartig says that he examined at least 15,000 specimens of the genus *Cynips*, as limited by him, without ever discovering a male. To the same purpose he collected about 28,000 galls of *Cynips divisa* and reared 9 to 10 thousand *Cynips* from them; all were females. Of *C. folii* likewise he had thousands of specimens of the female sex without a single male.



Hartig observes that if these insects had been obtained by catching, the absence of the males might be explained by their escaping, in some way or other, our prosecution; but, says he, this supposition is not admissible for insects obtained by rearing; he was compelled to conclude, therefore, that these insects were agamous, or, in other words, that the males did not exist at all.

In a communication made to the Academy of Sciences in Philadelphia and which is published in its Proceedings (July, 1861), I have reported on an observation, which, if confirmed, would solve the question of the sexes of *Cynipidæ*. From a singular, spindle-shaped gall on the red oak, I reared a male *Cynips* which is very similar to the gall-fly of the common oak-apple of the red oak, *Cynips confluens* Harris, known in the female sex only and looks exactly as one might suppose the ♂ *Cynips confluens*, if known, ought to look. If it is proved that the *Cynips* of the spindle-shaped gall is the male of the *Cynips* of the oak-apple, and if it is shown, by further observation, that in the genera, supposed agamous by Hartig, the males produced from galls are different from those of the females, then it will be plain how 28,000 galls of the same kind could give 10,000 females and not a single male.

A strong proof in confirmation of my assertion is, that in those genera, the males of which are known, both sexes are obtained from galls in almost equal numbers, even the males, not unfrequently, predominate in number (see Hartig, l. c. IV, 399). Now the gall-flies reared by me from the oak apple were all females; Dr. Fitch also, had only females; and Mr. B. D. Walsh, in Rock Island, Ill., reared (from oak-apples of a different kind) from 35 to 40 females, without a single male. This leads to the conclusion that the *Cynipes* of the oak-apples belong to the genera hitherto supposed to be agamous. If the characters of Hartig's subdivisions were given more in detail, the simplest way of testing the question would, of course, be found in those characters; they would decide at once whether *Cynips confluens* really belongs to Hartig's agamous genera and whether the discovery of a male is a novelty in science or not.

I will state some other questions, deserving the especial attention of future observers.

Most of the gall-flies always attack the same kind of oak; thus the gall of *C. seminator* Harris, is always found on the white oak; *C. tubicola* O. S. on the post oak etc. Still some galls of the same form occur on different oaks; a gall closely resembling that of *C. quercus globulus* Fitch, of the white oak occurs also on the post oak and the swamp chestnut oak; a gall very similar to the common oak-apple of the red oak occurs on the black-jack oak etc. Are such galls identical, that is, are they produced by a

gall-fly of the same kind? I have not been able to investigate this question sufficiently. Again, if the same gall-fly attacks different oaks, may it not, in some cases, produce a slightly different gall? It will be seen below that *C. quercus futilis*, from a leaf-gall on the white oak, is very like *C. quercus papillata* from a leaf-gall on the swamp chestnut oak; I could not perceive any difference, except a very slight one in the coloring of the feet. Both gall-flies may belong to the same species and although the galls are somewhat different, they are, in some respects analogous and might be the produce of the same gall-fly on two different trees.

Some gall-flies appear very early in the season; *Cynips quercus palustris* for instance emerges from its gall before the end of May; these galls are the earliest of the season; they grow out of the buds and appear full-grown before the leaves are developed. May not this gall-fly have a second generation and if it has, may not the gall of this second generation be different from the first, produced, as it would be, under different circumstances, in a more advanced season, perhaps on leaves instead of buds etc.?

A remarkable fact is the extreme resemblance of some of the parasitica gall-flies with the true gall-fly of the same gall. Thus, *Cynips q. futilis* O. S., is strikingly like *Aylax? futilis*, the parasite of its gall. The common gall on the blackberry stems produces two gall-flies which can hardly be told apart at first glance, although they belong to different genera.

I have said enough to show the great interest of the study of the habits of gall-flies and will conclude now by giving some necessary explanations about the terms used in my paper.

The terminology of the neururation of the wing which I have used, is that of Hartig. I call *subcostal* vein the first longitudinal vein below the anterior margin; its tip, joining this margin, forms an obtuse angle with the remainder of the vein. The *radial vein* begins at the triangular *areolet* in the middle of the wing and runs obliquely towards the anterior margin, which it reaches about midway between the tip of the subcostal and the apex of the wing. The area enclosed between this vein, the anterior margin and the tip of the subcostal is the *radial area*. Sometimes the subcostal, instead of stopping at, or just below, the anterior margin, is continued along that margin till it reaches the tip of the radial vein; in this case, the *radial area* is *closed*. The *areolet* is connected with the angle or knee of the subcostal by a vein which Hartig considers as a part of the radial vein, (he calls it the *lower radius*) and which Dr. Fitch calls the *second transverse vein*. I have used the latter name. This vein is important, as on its length and direction depends the form of the radial area, on which, as we have seen above, is based the division of the *Cynipidae* in two sections. In the first section, the *areolet* is nearly opposite the tip

of the subcostal vein; the second transverse vein is then short and frequently angular; the radial area is elongated. In the second section, the areolet is beyond the tip of the subcostal vein; this makes the second transverse vein longer and more oblique and that the radial area more or less triangular. The *areolet* is frequently indistinct, sometimes absent.

The *basal vein* of Hartig or the *first transverse vein* of Fitch, is a stout, always very distinct vein near the base of the wing, starting from the subcostal and running a certain distance across the wing. The *cubitus* is a pale, frequently obsolete vein, which starts from the *basal vein* touches the areolet and disappears long before reaching the posterior margin.

The last longitudinal vein, nearest to the posterior margin, I call the *anal vein*.

The literature of the North American galls is not abundant. Bosc was the first who described 16 galls from Carolina as stated by Mr. Westwood (Introd. II, p. 131). Having been unable to find the work of Bosc in this country, I made an effort to obtain an abstract from Europe; but thus far I have failed.

Dr. Harris, in his Treatise on the Insects of New England injurious to vegetation, has described the galls of *Cynips confluens*, *C. nubilipennis*, and *C. seminator*.

Dr. Fitch (Reports etc. Vol. II) described and figured quite a number of oak-galls, illustrating them in his usual popular and highly attractive manner.

All the galls, described below, have been found in the environs of Washington, unless otherwise mentioned. Besides the gall-flies (*Psenides*, *Inquilinæ*, and *Parasites*), numerous other hymenopterous parasites have been reared from the galls; but their description is reserved for some future occasion.

The number of galls recorded in this paper can be but a very inconsiderable fraction of the total number of the oak-galls of this country; and the history of many of these even is but imperfectly known.

I would be very thankful to all entomologists or observers of nature who would communicate me their observations.

R. OSTEN SACKEN.

WASHINGTON, D. C.  
Russian Legation,  
August 25, 1861.

## SYNOPSIS OF THE OAK-GALLS.

## I. On leaves.

- A. Formations of a definite, constant form, fastened to the leaf by a very small portion of their surface (except No. 10) *and which can be taken off without carrying a portion of the leaf with them*; fastened (except No. 7 and 8) to the underside of the leaf.

Globular galls, consisting of a smooth shell with a single kernel in the centre; the space between both being filled with a spongy, or cellular substance, or with filaments radiating from the kernel to the shell.

With the spongy substance; diameter of the gall about 1.5.

1. Red oak; gall of *Cynips confuens*, Harris.

Black oak; } analogous galls; gall-fly also very sim-  
Black-jack oak; } ilar; is it different?

With the cellular substance; diameter of the gall 0.15—0.2.

2. Live-oak; gall-fly unknown.

With the filaments.

Diameter about an inch; filaments not very dense, without silky gloss.

3. Red oak; gall-fly unknown, perhaps *C. confuens* Fitch (non Harris).

Diameter three quarters of an inch or less; filaments silky.

4. Post oak; *Cynips quercus centricola* O. S.

Subglobular galls with a thick hard shell and with a network of lines on the surface; diameter 0.25—0.4.

5. White oak; *Cynips quercus pisum* Fitch.

Cylindrical, tubular gall, with spines on the outside.

6. Post oak; *Cynips quercus tubicola* O. S.

Spindle shaped, petiolate galls, the petiole being the prolongation of one of the leaf-veins; frequently on the edge of the leaf.

7. Red oak; *Cynips quercus cælebs* O. S. (the supposed male of *C. confuens* Harris.)

8. White oak; *Cynips quercus fusiformis* O. S.

Wooly excrescences.

Rounded, wart-like; apparently with a single kernel.

9. Post oak; *Cynips quercus verrucarum* O. S.

White oak; } distinct from the former; gall  
Swamp chestnut oak; } flies unknown.

Irregular, with numerous seed-like kernels.

10. White oak; *Cynips quercus lanæ* Fitch.

Post oak; gall-fly unknown.

A.A. Galls more or less intimately connected with the substance of the leaf, projecting generally on both its sides (except No. 17), they cannot therefore be detached without carrying a portion of the leaf with them.

On buds or very young leaves.

Globular, hollow gall, with a single, whitish, cocoon-like kernel, rolling freely about within the shell.

11. Pin oak; *Cynips quercus palustris* O. S.

Similar galls on other oaks.

On the blade of the leaf.

With a single kernel.

Globular, of the size of a hazelnut or grape, a third of the sphere projecting on the upper side of the leaf and the remainder opposite, on its underside.

12. Red oak; *Cynips nubilipennis* Harris.

With two and three kernels.

Rounded on both sides of the leaf.

13. White oak; *Cynips quercus futilis* O. S.

Nipple-shaped, with a reddish aureole on the underside of the leaf.

14. Swamp chestnut oak; *Cynips quercus papillata* O. S.

With a variable number of kernels or cells; gall varying in size and form accordingly.

Irregular, flattened gall of a cellular substance; surface uneven and microscopically hirsute.

15. Post oak; *Cynips quercus irregularis* O. S.

Irregular, small, hard gall, abruptly rising on the upper side of the leaf, somewhat subconical on the opposite side.

16. Red oak; *Cynips quercus modesta* O. S.

On the midrib of the leaf.

Swelling of the midrib on the underside of the leaf.

17. Black-jack oak; *Cynips quercus nigræ* O. S.

Red oak; similar swelling; gall-fly unknown.

Woody, rounded or club-shaped gall on the leaf stalk, at the origin of the leaf, or on the midrib, near the basis of the leaf.

18. Swamp chestnut oak; gall-fly unknown.

## II. On limbs, twigs, etc.

- A. Formations of a different substance than the limb, which can be taken off without carrying a portion of the limb with them.

Globular, corky galls with a single kernel.

19. White oak; *Cynips quercus globulus* Fitch.

Post oak;  
Swamp chestnut oak; } gall-flies unknown.

Oblong, smooth gall, spongy inside; single kernel.

20. Spanish oak; gall-fly unknown.

Wooly mass, surrounding the twig and containing very numerous seed-like kernels.

21. White oak; *Cynips seminator* Harris.

Bladder-like, hollow galls, packed together in numbers round the limb.

22. White oak; *Cynips quercus ficus* Fitch.

- AA. Swellings of the limbs, twigs, leafstalks, which cannot be detached without breaking the limb.

At the tip of limbs and twigs.

23. Willow oak; *Cynips quercus phellos* O. S.

24. White oak; *Cynips quercus arbos* Fitch.

25. White oak; gall-fly unknown, perhaps identical with the preceding.

Distant from the tip of limbs or twigs.

26. White oak; *Cynips quercus batatus* Fitch.

27. White oak; *Cynips quercus tuber* Fitch. (\*)

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\* The singular woody knots, emitting pale yellow, conical, brittle projections, which occur in great numbers on the pin oak, if they are produced by a *Cynips*, should be referred to this section.

1. *QUERCUS RUBRA*. *Red Oak*. *Large, smooth, globular gall on the leaves, filled, when ripe, with a brown, spongy mass.* Diameter about 1.5. *CYNIPS CONFLUENS* Harris.

It is described by Dr. Harris (Treatise etc. p. 433).

These galls are more than one inch, sometimes almost two inches in diameter. "They are green and somewhat pulpy at first, says Dr. Harris. but when ripe, they consist of a thin and brittle shell, of a dirty drab color, enclosing a quantity of brown, spongy matter in the middle of which is a woody kernel about as big as a pea. A single grub lives in the kernel, becomes a chrysalis in the autumn, when the oak-apple falls from the tree. changes to a fly in the spring and makes its escape out of a small round hole which it gnaws through the kernel and shell. This is probably the usual course, but I have known the gall-fly to come out in October."

I am more inclined to agree with Dr. Fitch who supposes that there are annually two generations of this fly. They are not rare around Washington, but I have never found them so abundantly as they seem to occur in other localities. On the first of June I found balls of this kind already ripened, measuring one inch and a half in diameter, of the usual drab color and somewhat greenish only at its base. One of them, which I opened contained a larva. On the 13th of June another gall was opened, it contained the perfect insect, but with wings yet wet and folded and evidently not quite ready to escape.

On examining the specimens of this gall in my collection, I notice two varieties of it. The one, the surface of which is glossy, occurs on the smooth leaves of the red oak; the other, with a more opaque, almost downy surface, always occurred on tomentose leaves. I am unable to tell at present from what kind of oak the latter leaves were taken and hence, whether the gall is a different one or only a variety. I know that the same gall is said to occur on the black oak (*Q. tinctoria*); I found a similar one on the black-jack oak (*Q. nigra*) and by cutting it open, obtained a gall-fly closely resembling *C. confluens*. But it would require a larger number of specimens to settle the question of their identity or diversity. (\*)

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\* My manuscript was already presented to the Entomological Society, when I received from Mr. Benj. D. Walsh in Rock Island, Ill., two specimens of a gall-fly, which he had reared abundantly from a gall answering exactly Dr. Harris's description of the gall *C. confluens*. He took these specimens for the true *C. confluens*, in which I cannot agree with him, as the words of Dr. Harris's description ("head and thorax with little pits") do not answer to them. It seems to be therefore a different kind of gall, very like the preceeding, but producing a very different insect, as the ♀ has 14-jointed, and not 13-jointed antennæ. I add the description of this *Cynips* as follows:

*C. aciculata* n. sp. ♀.—Black; antennæ 14-jointed, pitch-black: face pubescent,

The insect of this gall is:

*Cynips confluens* Harris. ♀. — Head and thorax black with numerous little pits and short hairs; the hind body is smooth and of a shining pitch color; the legs are dull brownish-red and the fore wings have a brown spot near the middle of the outer edge; length 0.25; exp. of wings 0.6." (from Harris's description). My specimens measure 0.21. To my knowledge, females only have been found and described.

The male, either of this species, or of (*C. quercus inanix* (No. 3), has been reared by me from the spindle-shaped gall, described under No. 7 (*C. quercus cælaris* O. S.).

From the oak-apple I have also reared the following fly, belonging to the section of *Inquilinæ* Hartig. I am not certain about the genus, but place it under the head of *Synophrus* Hartig on account of the structure of its abdomen. (Yet it is to be observed that *Synophrus* is located by Hartig among the true gall-flies.)

*Synophrus*? *læviventris* n. sp.— Head reddish-brown, vertex darker, antennæ brownish-yellow, 14-jointed (♀), thorax black, moderately glossy, finely punctate, slightly pubescent; scutellum gibbous, with a recurved, elevated margin and slightly reddish at tip; pleuræ black, punctate anteriorly, polished and glossy under the insertion of the wing, aciculate below; abdomen shining, chestnut-brown or black, paler below, consisting apparently of a single segment, all the following being concealed under this; its anterior portion or neck is tumid and striate; feet brownish yellow, tips black, hind femora sometimes infuscated; wings hyaline, veins pale, radial area closed by the prolongation of the subcostal vein along the anterior margin of the wing; cubital vein very slender, almost obsolete; areolet small. Length 0.07.

2. *QUERCUS VIRENS*. *Live Oak*. *Small, globular galls on the underside of the leaf*. Diameter 0.15—0.2.

Pale brownish when ripe; filled inside with a spongy, cellular mass, which is more dense than that of the preceding gall and not unlike the

with numerous, dense little grooves (as if scratched with a needle) converging from the eyes towards the mouth; vertex with dense little pits and wrinkles. Thorax finely pubescent, with a distinct, flat, longitudinal furrow in the middle and on both sides with numerous little grooves, similar to those of the head, running obliquely towards the central furrow; pleuræ with dense longitudinal grooves; scutellum with two large, flat pits at the basis, a longitudinal groove in the middle and numerous little pits on both sides. Abdomen pitch-black, shining, with an extremely minute, microscopical punctation near the hind margin of the segments, but not quite reaching this margin, which is smooth; feet brownish-red, coxæ black; last joint of the tarsi infuscated; wings with a dark brown spot at the basis of the radial area; tips of the veins not reaching the margin of the wing; areolet triangular, distinct. Length 0.25.

Besides the 14-jointed antennæ, the more distinct areolet, the aciculated thorax etc., this species is distinguished from *C. confluens* by the form of its abdomen, which is less rounded above and more abruptly truncated behind.



pith of a reed in texture. Single kernel in the centre.

I am indebted for these pretty galls to Dr. Foreman, who brought them from Georgia, and although I do not know the fly, I have no doubt, from the structure of the gall, that it is the produce of a *Cynips*.

3. *QUERCUS RUBRA*. *Red Oak*. *Large, smooth, globular brownish-yellow gall, attached to the underside of the leaves, inside with whitish, delicate filaments radiating from the kernel to the shell.* Diam. about an inch.

Very like gall No. 1, at first glance, but smaller, the specimens in my possession measuring an inch or a little more in diameter. It is also fastened to the leaf by a small point of its surface. The outside of this gall shows no other difference from the oak-apple of the red oak but the size.

The inside on the contrary distinguishes them at once; instead of the spongy, brown mass with which the other gall is filled, this one is almost empty, the kernel being kept in its central position by a certain number of whitish filaments which radiate from it to the shell. I have found several specimens of this gall near Washington, without obtaining the insect.

My attention has been called by Mr. B. D. Walsh, to the fact that this gall has been erroneously taken by Dr. Fitch (Reports, Vol. II, No. 317) for *confluens* Harris. Judging from some expressions in Dr. Fitch's description, it may really be so. In this case, the insect described by Dr. Fitch as *C. confluens* would be a new species, very like the former; for which I propose the name of *Cynips quercus inanis* (Syn. *C. confluens* Fitch, non Harris). In the same case, I would be much inclined to think that my *C. quercus cælebs* is the male, not of *C. confluens* Harris, but of *C. quercus inanis*.

4. *QUERCUS OBTUSILOBA*. *Post Oak*. *Smooth, globular gall, attached to the underside of the leaves, inside with dense, white, silky filaments radiating from the kernel to the shell.* Diameter three-quarters of an inch or less. *CYNIPS QUERCUS CENTRICOLA* O. S.

Easily distinguished from the two preceding by its smaller size, and its more even surface. The inside is very like that of the preceding gall, only the white filaments are much more numerous and dense and have a silky gloss. In autumn I found these galls brownish-yellow, with numerous pale, or brown or reddish spots; in winter the dry galls are of a uniform color, not unlike that of yellow peas.

*Cynips quercus centricola* n. sp. ♀—Head black, opaque, finely pubescent without any visible punctation; palpi pale brown, black at tip; antennæ 14-jointed; first joint of the flagellum longer than the two basal joints taken together; the following joints gradually decreasing in size; the six last joints very short; thorax

black, opaque, finely pubescent with yellowish; two distinct, longitudinal furrows start from the shoulders and converge towards the scutellum; between them two indistinct, glabrous, somewhat concave lines, reaching from the collar to about half the distance towards the scutellum; on each side, between the furrow and the base of the wing, there is a smooth, shining, glabrous stripe, distinctly concave at its anterior end, which is very near the furrow, without however touching it; the interval between the furrows is finely and sparsely punctate, which punctation is somewhat concealed by the appressed pubescence; scutellum semioval, finely chagreened and pubescent, the pubescence converging towards a longitudinal, central line; the two pits, usually found at the basis of the scutellum, are flat, roughly sculptured at the bottom; on each side of them there is a tuft of short, yellowish hairs; abdomen dark brown, shining, finely pubescent on both sides at the basis; posterior margin of the second segment very oblique, the segment being much broader on its dorsal than on its ventral side; feet black, more or less reddish-brown at the trochanters, the knees and the basal joints of the tarsi, especially of the two anterior pairs; wings: basal, subcostal, radial and second transverse veins very stout, dark brown, almost black; the radial one slightly arched, its tip incrassated, almost club-shaped; second transverse vein very stout, angular; areolet distinct, triangular; cubital vein distinct before and beyond the areolet, running from it in a straight line and without decreasing at all in distinctness towards the posterior margin and stopping at a short distance before it; anal vein likewise straight and distinct; it has a brown cloud a short distance beyond the basal vein; another small brown cloud is in the corner formed by the radial and the cubital vein, just beyond the areolet and a couple of irregular brown marks towards the tip of the wing. Length about 0.17.

I have obtained the only specimens I possess by cutting the gall open (in October).

5. *QUERCUS ALBA*. *White Oak*. "*Globular gall, resembling a pea, its surface finely netted with fissures or cracks and intervening elevated points, like the surface of a strawberry, on the underside of the leaves.*" (A. Fitch, Reports, Vol. II, No. 319, with a figure). *CYNIPS QUERCUS PISUM* Fitch.

I found these galls internally exactly as Dr. Fitch describes them, with two cavities, divided by a thin partition. On the 23rd of June they were lemon-yellow, reddish on one side; the larvæ were very small. In autumn the dry galls have the color of a dead leaf and preserve their shape very well on account of their thick, woody shell.

The fly obtained by me from these galls is evidently different from that described by Dr. Fitch. The latter seems to be the true originator of the gall, whereas mine is very likely a parasite. My specimen, apparently a male, has 14-jointed antennæ (Dr. Fitch's *C. quercus pisum* has 15 and 13 joints), and on account of the structure of its abdomen belongs to the *Figitidæ*. The characters of the genus *Sarothrus* as given by Mr. Reinhardt (Berl. Ent. Zeit. 1860) agree with it tolerably well, except that the petiole of the abdomen is striate and not smooth.

*Sarothrus ? pisum* n. sp.—Black, mouth slightly reddish: antennæ 14-jointed,

brownish-ferruginous, base of first joint black; thorax finely pubescent, punctation exceedingly fine and indistinct; lower part of pleuræ smooth and shining; scutellum gibbous, rounded, deeply rugose; metathorax with two parallel, longitudinal carinæ; petiole short, slightly tumid, striate; second segment of the abdomen distinctly shorter than the third, downy on both sides, near the base; third segment very broad, especially beneath, occupying half of the abdomen, or more; the following segments very short; feet pale yellow; base of coxæ and tip of tarsi black; wings hyaline, thick veins pale, areolet present, although indistinct; anterior portion of the cubital vein almost obsolete; second transverse vein very oblique, slightly arched; radial area somewhat elongated, closed. Length about 0.14.

6. *QUERCUS* *ORTUSILOBA*. *Clusters of yellow, tubular galls with red spines, on the underside of the leaves.* *CYNIPS QUERCUS TUBICOLA* n. sp.

The gall is a perpendicular tube 0.3 to 0.4 long, slightly narrowed at its point of attachment, open at the other end, yellowish and covered on its outer surface with numerous red spines. If cut open longitudinally, its inside appears divided into three compartments like so many floors, by two horizontal partitions; the compartment nearest to the base is empty, the intermediate one contains the insect and the third one is open at the top.

If the red spines are removed with a knife and the surface of the gall examined under a strong lens, it shows dense longitudinal fibres and numerous little pale yellow crystals. The substance of the gall itself is hard, as if crystalline. From 30 to 40 of these galls are found sometimes on the underside of a single leaf. I frequently found them near Washington, in October and obtained the fly soon afterwards, each tube containing a single fly.

*Cynips tubicola* n. sp.—Chestnut-brown, darker on the abdomen, or, in immature specimens, the whole body reddish-brown; antennæ 13-jointed, basal joints brownish, the remainder black; feet yellowish brown, tips of tarsi black; thorax slightly pubescent; wings hyaline, subcostal and radial vein dark brown, areolet triangular, middlesized; second transverse vein very angular, portion of the cubital vein anterior to the areolet indistinct. Length 0.12.

I obtained numerous ♀ of this fly.

7. *QUERCUS RUBRA*. *Red Oak. Elongated, fusiform, pale green gall, with a pedicel, inserted on the edge of the leaf and being the prolongation of a leaf-vein.* Length about an inch. *CYNIPS QUERCUS CŒLEBS* n. sp.

The pedicel is about 0.15—0.2 long; the gall itself is an elongated, sub-cylindrical body, tapering on both sides, 0.6 or 0.7 long; its apex is slender, about 0.1 or 0.15 long. I have found three specimens of this gall near Washington, in June; two are inserted on the margin of the leaf, not far from the stalk; the third is on the leaf-stalk itself, but so that on the side of the gall the leaf originates about half an inch above its place of insertion, whereas on the other side the beginning of the leaf corresponds exactly to the place of insertion of the gall-stalk. In all the three cases,

the gall is the prolongation of a vein; in the latter case, the vein, in consequence of the growth of the leaf, has become entirely independent of the blade and appears to be growing out of the leaf-stalk. (I am indebted for this explanation of the growth of this gall to Prof. Schæffer, of this city).

The inside of these galls is hollow; each contains a brownish, oblong nucleus, kept in position by woody fibres. On the 17th of June I obtained the gall-fly from one of my specimens; on June 28th a parasite from the other; the third was dry when I found it. The gall-fly is a ♂ and I am inclined to take it for the male of either *C. confluent* Harris or of an allied species. (Compare the Introduction.)

***Cynips quercus coelebs* n. sp.**—Head and thorax black, opaque, deeply rugose, the latter pubescent; antennæ reddish-brown, paler towards the tip, 15-jointed, as long or longer than the body; feet ferruginous-yellow, posterior femora and tibiae infuscated; wings with a brown spot on the second transverse veinlet and a pale, almost obsolete brownish shade between it and the anal angle of the wing; the subcostal and radial veins are interrupted before reaching the anterior margin; the areolet is small, indistinct; the second transverse vein is stout and angular.

Length 0.16.

8. **QUERCUS ALBA.** *White oak. Elongated, fusiform gall on a pedicel, mostly on the margin, sometimes on the surface of the leaf.* **CYNIPS QUERCUS FUSIFORMIS** n. sp.

Resembles the preceding, but is much smaller. The pedicel is 0.2 or 0.3 long, the fusiform body about 0.15 or 0.2 and ends in a point. The pedicel is a prolongation of one of the leaf-veins. The color of the gall is that of the leaf, that is, it is green as long as the leaf is green and fades with it. This gall was first communicated to me by Mr. T. Glover, at the Maryland Agricultural College. He had obtained a parasitical Hymenopteron from it. In May 1861 I found several specimens of the same gall on a young white oak and succeeded in rearing the gall-fly.

***Cynips quercus fusiformis* n. sp.**—Black; antennæ brownish-yellow, infuscated towards the tip, 13-jointed, third and fourth joints of about equal length, elongated; the following joints gradually decreasing in length; four joints before the last are of equal length; last joint more than twice as long as the antepenultimate; face pubescent below the antennæ, smooth and shining above; thorax moderately shining very finely punctate, somewhat pubescent on the shoulders; two furrows converging towards the scutellum; the beginning of three others, indistinct ones, between them; scutellum more opaque than the thorax, gibbous, with a hardly perceptible, microscopical rugosity; abdomen chestnut-brown, a reddish band near the posterior margin of the second segment; the latter more than three times as long as the third segment; feet yellowish-ferruginous; posterior tibiae slightly infuscated; wings hyaline; thick veins brown; areolet moderate, triangular, very distinct; cubital vein somewhat indistinct at its origin, second transverse veinlet somewhat oblique, arcuated. Single female. Length 0.09.

9. **QUERCUS OBTUSILOBA.** *Post Oak. Small, round, pubescent, wart-*

*like excrescences on the underside of the leaves.* Diameter about 0.08.

**CYNIPS QUERCUS VERRUCARUM** n. sp.

They occur in numbers on one leaf in the latter part of the summer; when the leaf is dead, the wooly pubescence of these excrescences is pale ferruginous, but earlier in the season, it is I suppose, snow-white, as are similar excrescences on other oaks. I obtained several specimens of a gall-fly, which I call:

**Cynips quercus verrucarum** n. sp.—Black, shining, mouth reddish, antennæ 13-jointed, somewhat incrassated towards the tip, brownish, sometimes brownish-black, pale towards the base, especially at the tip of the two first and at the third segment; thorax shining, smooth, not punctate, even the usual grooves not perceptible; feet yellow, base of coxæ, middle of femora and tibiæ brown; wings hyaline, thick veins brown, second transverse vein curved, almost angular; areolet rather large, distinct; cubital vein slender, almost obsolete at the basis; feet yellow, coxæ, except at tip, femora and tibiæ in the middle, brown or almost black; (the feet of some specimens might be described thus: brownish-black, with more or less yellow at the articulations; tarsi yellow). Length 0.05.

Four specimens ♀ (?). I am not positive about the sex of my specimens, on account of the shrunken state of their abdomen; the number of joints of the antennæ I saw distinctly only in one specimen.

Similar excrescences, but somewhat larger, occur on the white oak and the swamp chestnut oak; in June and July both were covered with a white pubescence. On the former tree they occurred in rows, on the underside of the leaf, along the principal veins. On the chestnut oak I found them singly. Both are probably the produce of *Cynips*.

10. **QUERCUS ALBA.** *White Oak.* “Round mass, resembling wool, the size of a hazelnut or walnut and of a white or buff color, growing upon one of the principal veins on the underside of the leaf. Internally, numerous hard seeds about the size of grains of wheat, crowded together and attached by their lower end to the vein of the leaf.” (Dr. Fitch’s Reports, Vol. II, No. 316). **CYNIPS QUERCUS LANÆ** Fitch.

I have not found this gall yet and mention it on account of its resemblance with the following:

**QUERCUS OBTUSILOBA.** *Post Oak.* Very like the preceding, but apparently smaller and of a more irregular form. Those I observed grew at the basis of the leaf, extending about an inch or less along the midrib and sometimes invading the upper side of the leaf. They also contained seed-like kernels, but much smaller than a grain of wheat. I found them in autumn and did not obtain the fly.

11. **QUERCUS PALUSTRIS.** *Pin Oak.* Globular, hollow galls on the buds and young leaves. Diameter 0.35—0.4. **CYNIPS QUERCUS PALUSTRIS** n. sp.

Shell green, succulent, hollow on the inside, containing a whitish, globular body, about 0.1 in diameter, which rolls freely about, not being fastened to the shell.

I found these galls quite commonly very early in the spring, on the buds of the oak, before any leaves had appeared. At that early season already, the globular, whitish body contained the pupa. When the leaves came out, I observed the same gall on them, generally close by the leaf-stalk. The fly was obtained from the galls brought home on the 17th of May. In the woods, most of the galls were found empty on the 25th of May. Still, some of them contained the fly yet.

Several galls of this kind were observed on the pin oak; they seem to occur also on other oaks, but I neglected to observe on which, chiefly on account of their appearing before the leaves were developed. The gall shrinks completely when dried, but can be well preserved in spirits.

**Cynips (Trigonaspis?) quercus palustris** n. sp.—Black, mouth brownish-yellow, palpi brownish; antennæ filiform, 15-jointed in both sexes, 4 to 6 basal joints yellow, the remainder brown (in the ♂ the basal joints are also somewhat infuscated); third joint longer than the others, the following four gradually decreasing in length, the remainder of the same length; in the ♂ this difference in length is not so striking as in the ♀, and the third joint is somewhat thickened, whereas it is almost linear in the ♀; thorax black, smooth, shining; scutellum smooth and shining superiorly, deeply sculptured on its posterior declivity; abdomen black, shining; feet yellow, basis of coxæ brown, tips of tarsi black; wings immaculate, thick veins brown, those of the anterior portion of the wing especially dark; the basal vein sometimes obsoletely clouded; areolet of moderate size, distinct; cubitus distinct on its whole length, not quite reaching the margin. ♂ and ♀. Length 0.08—0.1.

12. **QUERCUS RUBRA.** *Red Oak.* "Globular galls, of the size of a hazelnut or grape, growing through the leafy expansion of the red oak, a third of the sphere projecting from the upper surface of the leaf and the remainder opposite, on its under side." (Dr. Fitch, Reports, Vol. II, No. 318). **CYNIPS NUBILIPENNIS** Harris (Callaspidia nubilipennis Fitch.)

The gall-fly is "black, with tawny yellow legs and its wings smoky on their disk and tips, with none of the veins continued into the margin, the antennæ 13-jointed in the female, which is 0.20 long and to the tips of her wings 0.30." (Fitch, l. c. See also Harris, Treatise etc. p. 434.)

This gall never occurred to me in the environs of Washington.

13. **QUERCUS ALBA.** *White Oak.* Small, rounded galls, projecting on both sides of the leaf. Diam. 0.25—0.3. **CYNIPS QUERCUS FUTILIS** n. sp.

Pale green, rounded but not globular, being somewhat flattened; inside with two or three small, seed-like, oblong kernels, kept in position by some whitish filaments. In July some of these galls are found dry; they retain then their size and shape, but have the color of a dead leaf, the rest of

the leaf remaining green. When taken from the tree in their fresh and succulent state, they shrink when dry, become reduced in size and almost unrecognizable. I first noticed these galls on the 14th of May when they were nearly full-grown. On the 15th of June they hardly had changed their appearance, but the larvæ in the kernels had grown to their full size. On June 23rd some of the kernels already contained the pupa and between that date and the 2nd of July the gall-flies began to escape from the galls I had brought home. Besides the gall-fly, I obtained one of the *Inquilinæ*, which may be an *Aylax* Hartig.

*Cynips quercus futilis* n. sp.—Black; slightly reddish at the mouth; palpi, antennæ and feet yellow; coxæ blackish at base; posterior femora slightly infuscated superiorly; thorax smooth, hardly aciculated; scutellum somewhat punctate; abdomen shining; second segment about four lines longer than the third; following segments very much contracted under the second; antennæ 15-jointed, first joint of the flagellum a little longer than the others, which are of the same length; wings immaculate, thick veins brownish-yellow; areolet extant, small; cubitus distinct, although very slender; somewhat obsolete only at the base. Length 0.06.

Four ♂ specimens.

*Aylax* (?) *futilis* n. sp.—Black, mandibles yellowish-brown; antennæ 14-jointed, yellowish-brown, first joint brown, base of flagellum paler; third joint longer than the others, somewhat excised inferiorly; feet brownish-yellow; posterior feet almost brown, yellowish only at the articulations; thorax rugose-punctate, with a short, scattered pubescence; pleuræ with a smooth, shining black spot; abdomen shining, second segment not much longer than the third, the two following very short; wings immaculate, thick veins brownish-yellow; radial area closed, the subcostal being prolonged along the anterior margin of the wing as far as the tip of the radial vein. Length 0.06.

Single specimen, apparently a male.

At first glance, this species looks very much like the preceding, being of the same size and color; but it is easily distinguished by the usual characters of the *Inquilinæ*, the form of the radial area, which is closed, the position of the areolet, etc. I am far from being certain as to the genus to which this species belongs.

14. *QUERCUS PRINOS*. Swamp-chestnut Oak. Small, rounded galls, projecting on both sides of the leaf, somewhat nipple-shaped and enclosed in a reddish aureole on the under side. Diameter about 0.15. *CYNIPS QUERCUS PAPILLATA* n. sp.

The reddish aureole surrounding the nipple-shaped protuberance on the under side of the leaf is very characteristic. The inside of these galls contains two or three reniform kernels, with a larva in each compartment.

They occur in numbers on the same leaf. In the latter part of June I obtained the perfect insect. It was a single specimen, apparently a male, resembling in all respects *Cynips quercus futilis*, obtained from the

gall on the leaves of the white oak, except that its femora and tibiæ, especially the posterior ones, are infuscated. I call it *Cynips quercus papillata* n. sp.

15. *QUERCUS OBTUSILOBA*. *Post Oak*. *Irregular, flattened galls, projecting on both sides of the leaf, yellow, when ripe and dry, and of a substance not unlike soft wood or pith, enclosing several hollow kernels.*  
*CYNIPS QUERCUS IRREGULARIS* n. sp.

The size of this gall depends on the number of kernels it contains.

One specimen in my possession, about 0.4 long and 0.23 broad, is pierced with 16 holes through which its inmates had escaped; but they may have been small parasites. The average size of these galls is between a quarter of an inch and half an inch in length. Sometimes several of them are packed closely together and separated only by furrows. The color of the galls, when ripe is a light leather-yellow; their substance resembles then the pith of a plant, being softer than wood and still hard enough not to shrink in drying. When examined under a lens of moderate power, the gall appears to be covered with numerous little points or small cones, each bearing a few short hairs on the tip, which under such a magnifying power gives the surface a shaggy appearance. On the 29th of May, when I first discovered these galls, some of them, although yet green, were already pierced with holes. Other galls still contained larvæ much later in the season. The only fly obtained from these galls was accidentally injured, so that I can give only an incomplete description.

*Cynips quercus irregularis* n. sp.—Head brown, mouth yellowish; antennæ pale yellow, third joint thrice longer than the fourth, slender, somewhat curved, attenuated towards the base, stouter towards the tip; three following joints almost of the same length (the remainder are broken); thorax brownish superiorly, pale beneath, smooth, shining; feet pale, tips of tarsi infuscated; wings somewhat greyish; *radial vein almost parallel to the anterior margin*; this renders the radial area unusually long, linear; its tip is somewhat rounded; the terminal portion of the subcosta, joining the anterior margin, is also unusually oblique and therefore long; the pale spot on the subcosta, close before the second transverse veinlet, is very distinct; the areolet is distinct, of moderate size; cubital vein distinct; basal vein (or first transverse veinlet) dark brown, with a slight brownish cloud; the other thick veins are of a paler brown. Length 0.08 (?).

This species will be easily recognizable on account of its elongated, almost lanceolate radial area. The unusually pale coloring of my specimen makes me think that it is immature; still the wings are perfect. The structure of the third joint of the antennæ and the size of the wings seem to indicate a male. (The abdomen is broken.)

16. *QUERCUS RUBRA*. *Red Oak*. *Small, irregular, hard protuberance, projecting on both sides of the leaf and not differing from it in color.*



Diameter about 0.15. *CYNIPS QUERCUS MODESTA* n. sp.

The two specimens in my possession are a little longer than broad, rising abruptly on the upper side of the leaf, more subconical on the opposite side. The substance is hard, almost woody. I cut one of my specimens open and found that notwithstanding its small size, it contained five hollows, each producing the comparatively large fly. Three of the flies had already escaped from this gall, the two others, although perfectly formed, were still in their cells; a third specimen I reared from the other gall (end of June). On the whole, this gall has so little peculiar and characteristic about it, that I apprehend it will be somewhat difficult to identify it, unless by the fly.

*Cynips quercus modesta* n. sp.—Head reddish-brown below and behind the eyes, vertex black; antennæ yellowish-brown, 12-jointed, third joint elongated, the following gradually decreasing in length; the last twice as long as the preceding; thorax black, subopaque, microscopically, but densely punctate, with two moderately deep furrows converging towards the scutellum; abdomen dark brown; feet yellow, middle portion of the femora and tibiæ brown, especially on the posterior pair; tips of tarsi infuscated; wings hyaline, thick veins pale brownish; areolet indistinct or none. Length 0.06.

Three ♀ specimens.

17. *QUERCUS NIGRA*. *Black-jack Oak*. *Irregular, elongated swelling on the under side of the midrib of the leaf*. *CYNIPS QUERCUS NIGRÆ* n. sp.

Found two specimens, in June. One of them extends for about an inch along the vein, the other is shorter; both are greenish, and about 0.2 or 0.3 broad. Each gall contained several flies, which escaped between the 20th and 22nd of June, after which the larger gall appeared pierced with nine holes.

*Cynips quercus nigræ* n. sp.—♀. Reddish-brown on head and thorax; abdomen dark brown, shining; antennæ 14-jointed, brownish-yellow, last joint elongated (viewed in a certain light it appears to have an indication of a 15th joint); anterior feet brownish-yellow, intermediate ones darker brownish on femora and tibiæ; posterior ones still darker brown; all the tarsi brownish-yellow, with infuscated tips; wings hyaline, very transparent, subcostal and radial veins colorless, almost pellucid, areolet none, cubital very indistinct.

♂. Black, abdomen shining, antennæ yellowish, brown at base (? a portion of them in my only specimen is broken), feet pale yellow, femora brownish in the middle, tibiæ of the intermediate and posterior pair brownish; tips of tarsi infuscated; wings as in the ♀. Length ♂ 0.05, ♀ 0.09.

Eight ♀ and one ♂ specimens.

A precisely similar swelling occurs on the red oak and I found several on the 16th of July, but did not obtain the fly.

18. *QUERCUS PRINOS*. *Swamp-chestnut Oak*. *Swelling of the leaf-stalk, at the basis of the leaf, or, sometimes, of the midrib near the basis*.

About 0.4 or 0.5 long.

These swellings are subconical or club-shaped; they are rounded when they occur on the midrib. In June, they were green, but began to become brownish towards the end of this month. Those of the last year were woody and brown and altogether club-shaped, as the leaf round them was broken off. From this gall I obtained numerous parasites and one gall-fly, belonging to the *Figitidæ*. I would consider it as an *Amblynotus* Hartig, but the second segment of its abdomen is much shorter than the third. In all respects, it is closely allied to the gall-fly which I raised from the gall of *C. quercus tuber* Fitch; the antennæ (♀) are 13-jointed, the base of the abdomen is pubescent or downy, its radial area is closed etc. Thus, the true originator of the gall remains unknown, unless it is proved that *Figitidæ* are sometimes gall-producers.

*Amblynotus* (?) *petiollicola* n. sp.—Black, head and thorax somewhat shining, smooth, slightly pubescent, the latter hardly punctate, scutellum rugose; a slight carina between the antennæ, mandibles brown, palpi yellow; antennæ 13-jointed, yellow, basis blackish; 4 or 5 basal joints of the flagellum elongated; abdomen dark brown, shining; petiole short; second segment short, pubescent at base, third segment more than twice as long as the second; feet infuscated, except at the joints, tarsi pale, tips black; wings hyaline, radial area closed, second transverse vein oblique, arcuated; areolet corresponding to the middle of the radial area. Length 0.07.

19. *QUERCUS ALBA*. *White Oak*. *Globular galls of a corky texture on the limbs*. Diameter 0.4—0.5. *CYNIPS QUERCUS GLOBULUS* Fitch.

"Smooth, globular galls the size of a bullet, growing singly or two, three or more in a cluster, upon white oak twigs, internally of a corky texture, each containing in its centre a single worm, laying in an oval, whitish shell, resembling a little egg, 0.15 in length, producing sometimes a black gall-fly with tawny-red legs and the second veinlet of its wings elbowed or angularly bent backward, its length 0.15; sometimes a smaller fly (*C. omeratus* Harris) of a clean pale yellow color, almost white, with a broad black stripe on the whole length of its back etc, its length 0.12." (Dr. Fitch's Reports, Vol. II, Nos. 312, 313.)

Dr. Fitch remarks that further researches will probably show that the galls from which these two kinds of flies come, grow upon different parts of the white oak and that the galls themselves will present some differences in their structure. Having obtained the same two species from these galls, I can only say that according to Mr. Hartig's view on the subject, both may be hatched from the same kind of gall. The *Callaspidia quercus globulus* Fitch belongs to the true gall-flies (*Psenides*) of Hartig; the *Cynips omeratus* Harris, on the contrary, is to be referred, on account of the neuuration of its wings, to Hartig's section of *Inquillinæ*. Its radial area is closed, the subcostal vein being prolonged along the anterior margin of the wing,

and its areolet is more removed from the base of the radial area, on account of the oblique position of the second veinlet; its abdomen consists apparently of one single segment, the second segment being so large as to cover all the others; the petiole of the abdomen is tumid and has fine longitudinal striæ. The colors agree with Dr. Harris's and Dr. Fitch's description of *Cynips oneratus*.

My only specimen of the true gall-fly of this gall agrees tolerably well with Dr. Fitch's description of *Callaspidia quercus globulus*, only it is much larger, being about 0.21 long. I doubt therefore whether it is the same species. It certainly is not a *Callaspidia*.

Besides these two flies, I obtained from the same 'galls two coleoptera, *Hydnocera verticalis* Say and *Otidocephalus americanus* Sch. (*Curculionidæ*). The larva of the first, sharing probably the predaceous habits of the other *Cleridæ*, pierces, I suppose, the gall in order to consume the larva and establish itself afterwards in the kernel of the gall where it undergoes its transformation. It is in this situation that I found the beetle in cutting one of the galls open. The larva of the *Otidocephalus* feeds probably on the corky substance of the gall.

Galls in all respects similar to the gall of *Cynips quercus globulus* Fitch occur on the post oak; there may be a slight difference in the surface which seems to be less smooth; still as both galls vary in the appearance of their surface it is difficult to say whether this difference is constant. The best proof of the identity or diversity of both galls would be afforded by comparing the gall-flies. I did not obtain those of *Q. obtusiloba* and the only insect which escaped from the galls which I had brought home was a pretty fly belonging to the *Figitidæ*, of course a parasite in the gall.

*Aegilips* (?) *obtusiloba* n. sp.—Whole body black and shining, except the metathorax, which is rugose; antennæ (♀) 13-jointed, brownish-ferruginous, first joint black, except at tip, last joint somewhat infuscated; feet ferruginous-yellow, intermediate and posterior ones infuscated on femora and tibiae; all the coxæ black, yellowish at tip; scutellum elevated, almost conical; a sharp margin separates its anterior from its posterior side; anterior space of the pleuræ punctate, posterior one distinctly aciculate; petiole of the abdomen almost concealed by the funnel-shaped expansion of the anterior part of the first segment; this expansion is longitudinally striate; the second segment of the abdomen is broader than the third superiorly, but much narrower than it inferiorly, its posterior margin running obliquely downwards; third segment superiorly as broad as the three following together, and still broader inferiorly; wings hyaline, venation exactly like that of *Aegilips* (as figured in the Berl. Entom. Zeit. 1860, tab. IV, fig. 3) radial area triangular, cubital vein and areolet obsolete; thick veins pale yellowish. Length 0.08.

This species does not agree with any of the genera described in Mr. Reinhardt's Monograph of the *Figitidæ* (Berl. Ent. Zeit. 1860). It comes nearest to *Aegilips* Halid., from which it is distinguished by the structure of the first segment of the abdomen.

A specimen of a similar gall, but less smooth and less regularly globular was observed by me on the swamp chestnut oak.

20. *QUERCUS FALCATA*. *Spanish Oak*. *Oblong, subreniform, smooth galls, somewhat pointed at tip, yellowish-brown, fastened by one end to the twig.* Length three-quarters to an inch and more.

An abortive bud is generally at the basis of the gall. A spongy mass fills the inside. In a kernel in the centre I found the pupa of a large gall-fly apparently allied to *Cynips confluens* Harris. Several other, smaller hollows which I found nearer to the shell were evidently those of parasites.

I obtained some of the latter, but never succeeded in bringing the gall-fly to perfection, although I noticed the gall several times, always on the spanish oak.

21. *QUERCUS ALBA*. *White oak*. *Round mass, resembling wool on oak twigs, internally with numerous, seed-like grains.* *CYNIPS SEMINATOR* Harris.

This gall and the insect have been sufficiently described by Dr. Harris and Dr. Fitch (Reports, Vol. II, No. 315). I will only notice the differences, between my observations and those of Dr. Fitch. The thorax of my female specimens was black, the head alone being reddish-brown, whereas Dr. Fitch obtained numerous females with head and thorax cinnamon-red. Again, this author states that the females are much more numerous than the males, as he had obtained from a single gall 40 ♀ and one male.

My observation gave a different result, as I obtained from one gall 44 ♀ and 29 ♂ specimens and it is possible that many more had escaped before, as the flies began to come out immediately after I got possession of the gall. The antennæ of my ♂ specimens are yellow at their base, but decidedly brownish on their latter half. Finally the four galls of this kind, which I found in the environs of Washington have many angular projections which render their surface uneven and not so smooth and rounded as figured by Dr. Fitch. Notwithstanding all these differences, I hardly doubt that my specimens are identical with *Cynips seminator* Harris.

22. *QUERCUS ALBA*. *White Oak*. "*Dense clusters of hollow, bladder-like galls, pale dull yellow, resembling in shape preserved figs, packed in boxes.*" (Dr. Fitch, Reports, Vol. II, No. 314.) *CYNIPS QUERCUS FICUS* Fitch.

I have found a similar gall near Washington, but it is much smaller, the whole cluster being about three-quarters of an inch long and about a quarter of an inch broad. As this gall was on the same twig with one of the galls of *C. quercus tuber*, I am not sure from which of them the flies I obtained came. the more so, as, according to Dr. Fitch's statement both

flies are very similar. The ♂ thus obtained had 15-jointed antennæ, which agrees with *C. quercus ficus* Fitch; but the males of the flies which I reared from the oak tumor had the same number of joints. By all means, the insects which I reared from both galls are no true *Cynipidæ*, the second segment of the abdomen being shorter than the third and must be referred to the *Figitidæ*. (See No. 27, *C. quercus tuber*.)

23. QUERCUS PHELLOS. Willow Oak. Rounded, woody swelling at the tip of the limbs. CYNIPS QUERCUS PHELLOS n. sp.

Found copiously on the Virginia side of the Potomac, near Washington in June. At this time they were greenish and from 0.3 to 0.35 in diameter; numerous green leaves were attached to them. The flies escaped on the 29th of June.

*Cynips quercus phellos* n. sp.—Reddish-brown, abdomen shining, tarsi somewhat paler, their tips infuscated; antennæ 13-jointed; wings hyaline, very transparent, the thick veins almost colorless, hardly yellowish, *areolet none*, radial and cubital veins almost obsolete; the branch of the subcostal running towards the margin is abbreviated, rudimentary. Four ♀. Length 0.1.

The color of this species is like that of the head and thorax of *C. quercus nigræ* and the wings have the same transparency. The only thick and distinct veins of the wing are the basal vein and the subcostal vein, except its branch, running towards the margin, and the cross vein, running from the angle of the subcostal towards the place of the areolet. All the other veins, and consequently the area which they form, are almost obsolete.

24. QUERCUS ALBA. White Oak. "Swellings similar to those of *Cynips quercus tuber*, growing on the tips of the limbs of aged and large white oak trees." (Dr. Fitch, Reports, Vol. II, No. 310.) CYNIPS QUERCUS ARBOS Fitch.

The fly is "small, black, having all its legs and antennæ of a bright pale yellow color, and one more joint in the latter organs than in the preceding species (*C. quercus tuber*) in the males, which sex is 0.06 in length and to the tip of its wings 0.1." (Fitch, l. c.)

Is it identical with the following gall? But according to Dr. Fitch, this gall differs from that of *C. quercus tuber* by occurring on old and large trees only, whereas my gall No. 25 is found on trees of different age and size.

25. QUERCUS ALBA. White Oak. Club-shaped, woody swelling at the tip of the limbs.

In June these swellings are yet green; later in the season, they become brown, hard and woody; in autumn, the leaves emerging from their tip, break off and the swellings at the tip of the limbs are easily noticed.

They can be recognized immediately by their club-shaped form, the vestiges of the leaves (usually three), broken off from their tip and the flattened, uneven surface between these vestiges, with the round hole, through which the insect escaped, generally in the centre. If cut lengthways in two, an elongated cavity is found just below this hole, and under this, a second, smaller, more rounded cavity. The latter contains the larva.

Sometimes there are two cavities of the latter kind and consequently two larvæ occur in the same gall. On the 4th of July I found a pupa in an advanced state of ripeness in one of these galls; in the adjoining cell however was still a larva. I did not succeed in obtaining the gall-fly; instead of it, one of the specimens gave me *Hydnocera verticalis* Say, a coleopterous, living, as it seems, parasitically on oak-galls, as I obtained it also from the oak-bullet gall (*C. quercus tuber*) of Dr. Fitch.

This gall is very common around Washington. Is it the gall of *Cynips quercus arbos* Fitch (Reports, Vol. II, No. 310)? From the gall of *C. quercus tuber* Fitch it is easily distinguished by its more constant form, its more uniformly woody consistency and the absence of the seed-like shells, containing the larva.

I have found similar swellings on other kinds of oaks also.

26. *QUERCUS ALBA*. *White Oak*. "Large, hard, uneven swelling, three-quarters of an inch thick and twice or thrice as long, resembling a potato in its shape, growing on white oak twigs, more distant from their ends than the oak tumor." (Dr. Fitch, Reports, No. II, No. 311.) *CYNIPS QUERCUS BATATUS* Fitch.

"Its surface is coated with a glaucous, pale blue bloom, internally it is of a dense, corky texture in which are hard, woody spots." (ibid.)

"The fly has the basal joints of the antennæ and its legs dull pale yellow, its thighs and hind shanks black and its middle shanks often dusky, the antennæ of the female with thirteen joints and the length of this sex 0.09." (ibid.)

I have found near Washington a single gall answering this description, but did not succeed in obtaining the insect.

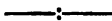
27. *QUERCUS ALBA*. *White Oak*. *Swelling of the small limbs or twigs*. (Dr. Fitch, Reports, Vol. II, No. 309.) *CYNIPS QUERCUS TUBER* Fitch.

These galls are easily distinguished from the club-shaped galls by their inside. "On cutting into these galls, says Dr. Fitch, the small limb on which they grow is found to have its wood thickened or swollen, and over it, forming the chief bulk of the tumor, is a corky substance of a yellowish-brown or snuff color, between which and the wood are several small

hard grains, resembling seeds, each having a cavity in its centre," etc.

The flies which I obtained from these galls agree with Dr. Fitch's description, except that the neuration of their wings shows that they do not belong to the true gall-flies (*Psenides*) of Hartig. The second segment of the abdomen is shorter than the third, the radial area is closed by the prolongation of the subcostal vein along the anterior margin and the areolet corresponds more to the middle than to the base of the radial area, all characters distinguishing them from the true gall-flies. Still, I am at a loss to say to what genus they belong. I thought for some time that they agreed with *Amblynotus* Hartig, as defined in Reinhardt's recent Monograph of the *Figitidæ* (Berl. Entom. Zeitschr. 1860), but the antennæ of the male, which I examined repeatedly on the living and the dead insect, appeared to me 15- and not 14-jointed. The ♂ of Dr. Fitch's *C. quercus tuber* has 14-jointed antennæ. My ♀, like Dr. Fitch's, have 12-jointed antennæ, if the last, very elongated joint, is counted for one. The ♀ of *Amblynotus*, according to Reinhardt, has 13 joints.

My specimens (several ♂ and one ♀) are black, with yellowish mandibles and a spot of the same color between them and the antennæ; the latter brownish-yellow, more dusky towards their tip in the ♂; feet yellowish, last pair, except at the knees and tarsi, more brownish; intermediate pair also slightly infuscated on the femora; wings hyaline, thick veins pale yellowish-brown; ♂ 0.05, ♀ 0.09 long.



PROCEEDINGS  
OF THE  
ENTOMOLOGICAL SOCIETY  
OF PHILADELPHIA.

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STATED MEETING, NOVEMBER 11.

President NEWMAN in the Chair.

Fifteen members present.

REPORT OF COMMITTEE.

The Committee on Dr. Clemen's paper read October 14th, reported in favor of its publication in the Proceedings of the Society.

DONATIONS TO CABINET.

66 specimens of *Coleoptera*, 7 *Orthoptera*, and 2 *Hymenoptera*, from G. A. Bœttner, of Chicago, Illinois.

53 specimens of *Coleoptera*, from James Ridings.

36 specimens of *Coleoptera*, from Rev. J. H. McFarland.

17 specimens of *Hemiptera*, and 16 *Coleoptera*, from Dr. T. B. Wilson.

18 specimens of *Coleoptera*, from James H. B. Bland.

9 specimens of *Coleoptera*, 3 *Orthoptera*, and 2 *Hymenoptera*, from Henry Feldman.

13 specimens of *Hymenoptera*, from Edward Norton, of Farmington, Connecticut.

2 specimens of *Diptera*, and 2 *Hemiptera*, from William Evett.

Total.—246 specimens.



## DONATIONS TO LIBRARY.

*Annual Reports of the Board of Regents of the Smithsonian Institution for 1858 and 1860.* From the Institution.

*Notice of some North American species of Pieris.* By Samuel H. Scudder. From the Author.

*Prairie Farmer (Chicago, Ill.), Vol. 8, Nos. 15, 16 and 17.* From the Editors.

*Proceedings of the Society for September and October.* From the Publication Committee.

## WRITTEN COMMUNICATIONS.

Letters were read from Messrs. Edward Norton of Farmington, Conn., Samuel H. Scudder of Boston, Mass., Stephen Calverley of Brooklyn, N. Y., and A. S. Packard, Jr. of Brunswick, Maine, acknowledging their election as Correspondents of the Society.

A communication was read from Mr. Evett, reporting the capture of the following insects during August and September:— *Tritoma unicolor*, in fresh fungi; *Anomala lucicola*, taken with the beating net on scrub bushes, long grass, and flowers; *Dicerca spreata* and *Distenia undatu*, on Oak trees; *Eriphus ruber*, on the Golden Rod; *Saperda discoidea*, on Hickory trees; *Anthrax Simson*, *Psarus quadrifasciatus*, *Dasygogon discolor*, *Eristalis trifasciatus*, *Sericomyia limbipennis*, and *Libellula Domitia*, on sunny spots in woods; *Vanessa orythia*, on the turnpike between Gloucester and Red Bank, New Jersey.

A paper was presented for publication in the Proceedings, entitled "A Catalogue of the Longicorn Coleoptera taken in the vicinity of Philadelphia, by James H. B. Bland."

And was referred to a Committee.

## PROPOSALS AND ELECTIONS.

Propositions Nos. 51 and 53 for membership were read.

Mr. C. F. Parker of Cooper's Point, New Jersey, and Robert Frazer, Esq. of Philadelphia, were elected *Members* of the Society.

And Mr. H. T. Fay of Columbus, Ohio, and Mr. W. H. S. Wood of New York. were elected *Correspondents*.

**MICRO-LEPIDOPTEROUS LARVÆ.**

**Notes on a few species, the imagoes of which are probably undescribed.**

BY BRACKENRIDGE CLEMENS, M. D.

I propose to describe, in the following paper, the mines and larvæ of a few of our American leaf-miners, to indicate their food plants and the months in which they should be sought for by the collector. The observations are taken from my notes and refer to larvæ I have not been successful in rearing, or to those I have noticed out of season.

In general, it may be said, the mines of the leaf-miners are characteristic of the genus to which the larva may belong. A single mine once identified, enables the collector to pronounce on the genus of all the species he may find thereafter. This added to the ease with which the larvæ are collected, and the little subsequent care required to bring them to maturity, except to keep the leaves in a fresh and healthy state, makes the study of this group in every respect pleasant and satisfactory to the entomologist.

I feel confident that many of our intelligent and painstaking collectors would engage in the study with enthusiasm if once placed safely on the way. I can see no surer course than commencing with the larva, assuring the student that in such a month, on the leaf of a certain tree, he may find the larva of a certain "micro." The search for those indicated in the present paper can scarcely fail to result in the discovery of many other leaf-miners not alluded to here, and these will surely be taken and carried home to ascertain the appearance of the imago. With this comes a desire to identify its genus and species and thus in a few seasons, or even in a single one, the collector adds greatly to his stock of entomological knowledge.

If the search for leaf-miners, is confined to forest trees, with which it is probably best to begin, the most favorable localities, are the edges of a wood or forest bordering on cultivated fields, patches of young trees often found in fields or even isolated trees, and the borders of a wood along streams. Some mines are most easily seen on the upper surface of the leaf, and others most perceptible on the under surface, and those which are transparent by placing the leaf between the sky and the eye.

The collector should be supplied with a tin box or canister of convenient size in which to place the mined leaves, separated from the tree at the end of the stalks, to prevent them from withering. If the top fits securely, leaves and parts of herbaceous plants may be kept fresh for several hours. He will render good service if he describes in a note book, the mine and the larva, both of which should be done with accurate minute-

ness, (retaining likewise the mined leaf and numbering it,) and the particulars of its transformation to a pupa, numbering the description and the vessel containing the leaf-miner. Two insects that are distinct, or suspected to be distinct species, should never be placed in the same breeding vessel. For the great majority of leaf-miners, a common tumbler or drinking glass, the top of which is made level by grinding with emery on a piece of sheet lead, covered with a piece of glass, and containing a little white sand moistened with water, makes a very good breeding vessel.

The leaf, or if a large one a portion of it, is stuck into the moistened sand and this together with the humid air of the interior of the vessel keeps it fresh.

*Coleophora* larvæ do not bear well confinement in humid air of the breeding jar. To be successful in rearing the larvæ, one must use a pot of moistened sand, in which the food plant is placed, covered with a glass cylinder, with fine gauze tied over the top; or the plant may be kept in water and covered with a cylinder of glass. For this purpose old chimney tops to lamps, answer very well. The larvæ of this genus, taken in the fall of the year hibernate in their cases until the following spring and "feed up" on the first leaves that put forth. They must not, therefore, be kept in a warmed room during the winter. The pupæ of the fall brood of larvæ thrive much better, likewise, if not kept in a warmed room during the cold months. The spring or early summer brood of larvæ produce imagoes in a few weeks after entering the pupa state and hence it is much more satisfactory to collect early in the year than during the latter part.

For convenience of reference, I append a table of months, designating the species included in this paper and their food plants, and intended to show when they should be looked for by the collector.

I shall be glad to hear from any one who may find any of the larva and is successful in rearing the imago. At the same time he might communicate the fact to the Entomological Society for publication in their proceedings, accompanied with a description of the imago and any observations on its natural history he may deem interesting or important. In the course of time, such a system would make the Journal an entomological necessity and provide a pleasant and instructive channel of communication between American entomologists.

A CALENDAR SHOWING WHEN THE FOLLOWING LARVÆ SHOULD  
BE SOUGHT.

**MAY.**

*Coleophora Tiliæfoliella*. Early to end. Leaves of Basswood, *T. Americana*.

## JUNE.

*Lithocolletis Salicifoliella*. Middle to end. Leaves of yellow willow.

*Nepticula villosella*. Latter part. Leaves of Blackberry.

*Lithocolletis Juglandiella*. Early. Leaves of Black walnut.

## JULY.

*Catastega Aceriella*. Early. Leaves of Red Maple.

*Nepticula Corylifoliella*. Latter part, to middle of August. Leaves of Hazelnut.

„ *Ostryæfoliella*. Same time. Leaves of Iron-wood, *O. Virginica*.

„ *Platanella*. Early. Leaves of Button-wood, *P. occidentalis*.

„ *saginella*. Early. Leaves of Oaks.

„ *Cratægifoliella*. Latter part. Leaves of Dwarf Thorn, *C. parvifolia*.

„ *Juglandifoliella*. Latter part, to middle of August. Leaves of Black Walnut.

„ *Caryæfoliella*. Middle to August. Leaves of Hickory.

*Aspidisca Saliciella*. Early to middle. Leaves of Yellow Willow.

*Nepticula villosella*. Early to middle. Leaves of Blackberry.

„ ? *Prunifoliella*. Leaves of Wild Cherry.

„ *Amelanchierella*. Early. Leaves of Service-berry, *A. Canadensis*.

## AUGUST.

*Ornix quadripunctella*. Early. Leaves of Service-berry, *A. Canadensis*.

*Lithocolletis Juglandiella*. About middle of the month. Leaves of Black Walnut.

*Catastega timidella*. Latter part. On Oaks.

## SEPTEMBER.

*Aspidisca Ostryæfoliella*. Middle to middle of Oct. Leaves of Iron-wood.

*Nepticula Virginiella*. Early. Leaves of Iron-wood.

„ *Rosæfoliella*. Early. Leaves of Dwarf Wild Rose.

*Catastega timidella*. Early. On Oaks.

„ ? *Hamameliella*. Early to middle. Leaves of Witch-Hazel.

## OCTOBER.

*Aspidisca Ostryæfoliella*.

*Coleophora Caryæfoliella*.

„ *Coryliella*.

„ *Viburniella*.

„ *Ostryæ*.

*Nepticula saginella*. Early. Leaves of Oaks.

*Coleophora Quercifoliella*. Early. On leaves of Oaks.

*Nepticula platea*. Early. Leaves of Oaks.

" *anguinella*. Early. On leaves of Oaks.

" *Corylifoliella*. Very early. On leaves of Hazel-nut.

*Coleophora Pruniella*. Very early. On leaves of Wild Cherry.

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## COLEOPHORA.

### HABITS OF THE LARVÆ.

The young larvæ feed either as miners in the interior of leaves or in the interior of seeds. When a leaf-mining larva has attained a certain age, it cuts out the two skins of the mined place and constructs of it a *portable case*, which it never abandons subsequently, except to construct a new one, when its increase in growth demands the change. In feeding, the larva attaches its case to a leaf and bores into it between its skins, eating out a transparent patch, extending its body from the case for this purpose, but quickly retreats into it again if alarmed. Some of the seed-feeding species remain within the withered flower, and therefore entirely concealed, until they are quite full fed. Others make a case of the husk of a seed, which they have eaten and are very difficult to distinguish from the untenanted seeds of the plant. The natural orders of plants that seems most frequented by the members of the genus are the *Caryophyllaceæ*, the *Leguminosæ*, the *Compositæ* and the *Labiataæ*, at least this applies to Europe and probably to our own country.

The larvæ, except when preparing to form a new case, make small mines, and the discovery of a leaf in which there are one or several transparent patches and both the skins of the leaf entire, with one of them pierced with a minute hole, is a very certain indication that it has been the work of a *Coleophora* larva.

The larva hibernate in their cases during the winter and produce imago in the following summer, "feeding up" during the spring.

Some of the insects named here from the larvæ may, possibly, have been named and described in the perfect state.

1. *C. Caryæfoliella*. The larva mines the leaves of hickory in September and October. The head and body is reddish-brown, somewhat darker on the second and third rings.

The case is small, dark brownish and in form is a flattened, simple, cylinder. The larva feeds only in small, rectangular patches of which there are usually several in the same leaf. The case is fixed to the under sur-

face and the larva feeds in one patch until it is compelled to remove its entire body from its case, and then removes to another part of the leaf to form a new mine. The fall larvæ may doubtless be taken in the spring or early summer. I have likewise found a case like the above on the leaves of Dogwood. The case I found was attached to the midrib of a leaf; I have not noted the existence of a mine.

2. *C. Corylifoliella*. The larva mines the leaves of Hazel in September and October. It is pale brown, with dark brown thoracic, dorsal spots. The case is three lines long, dark brown, irregularly cylindrical, compressed or flattened at its hinder end, with two teeth about the middle of the upper edge, separated from each other about one-third of the length of the case and dilated somewhat or rounded on the lower edge between the teeth. Mouth of case not deflected. The mine of the larva is nearly circular.

3. *C. Viburniella*. The larva mines the leaves of *Viburnum prunifolium* in September and October. The head and body is dark brown, with blackish thoracic patches on the second and third rings.

The case is irregularly formed. It is reddish-brown, nearly cylindrical, with a deflected mouth and tapering at the hinder end; on the upper edge, running up from the mouth of the case is a flattened wing-like appendage serrated on its upper edge, nearly equal to one-third of the case in length.

The lower case is dilated near the middle or undulating and near the hinder end above and below there is a slight projection. The case is attached to the under surface of the leaf and the mine is an irregular blotch.

4. *C. Pruniella*. The larva mines the leaves of wild cherry early in October, when it is more than half grown.

The case is flattened, having a notch on the upper edge about one-third from the mouth, whence it is curved regularly to the hinder end and the under edge is nearly straight from the mouth to about one-third of the length from the hinder end, where it is deeply notched and curved towards the upper edge thus forming a tail-like appendage. On the upper edge from the mouth of the case to the anterior notch, the edge is regularly curved.

5. *C. Ostryæ*. The larva mines the leaves of Iron-wood, *Ostrya Virginica* in October and during Spring.

The case is flat, rather wide, and the edges nearly parallel except near its mouth. The upper edge is slightly curved and almost at the hinder end is a slight notch, which is sometimes wanting, and the hinder end is squarely excised. Color of the case pale reddish-brown.

6. *C. Tiliæfoliella*. The larva feeds on the leaves of the Linden from the beginning to the latter part of May.

The case is black, somewhat pistol-formed; straight along the upper edge, turned abruptly down so as to form a handle-like appendage behind, with a toothed, flattened, projection about the middle of the under edge, whence to the mouth of the case it is cylindrical. The body of the larva is dull, dark brown and the dorsal plates and head black.

At this date the larva does not mine the leaf, but eats holes in it, devouring its substance. The case is fixed to the under surface of the leaf and is easily seen even on the leaves of the higher branches.

The larva enters on pupation in the latter days of May or early in June.

7. *C. Querciella*. The larva feeds on the leaves of Oaks in October.

It does not make a mine at date, but picks out the parenchyma of the leaf from the under surface, leaving the net-work of veins and the upper epidermis of the leaf entire.

The case is blackish-brown and smooth, the larva permitting the lower edge of the case to come in contact with the leaf. The case is slightly pistol-formed; the portion near the mouth circular and deflected, beyond which it widens and rises on the upper edge to a hump or projection about the hinder third, whence the outline descends to the posterior end which is squarely excised. The under edge is curved to a notch nearly opposite to the hump on the upper edge.

The habits of the larva are similar to the European *C. Ibipennella*; but the case differs from it in form.

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## LITHOCOLLETIS.

### HABITS OF THE LARVÆ.

The larvæ mine the leaves of trees, shrubs or low plants, separating either the upper or lower cuticle and feeding on the inner substance of the leaf. When the mine is on the upper surface, or at least most frequently when it is in this position, the leaf becomes folded and curved at the place mined, and the separated cuticle is gathered into folds or covers the curved portion so as to make a capacious habitation. Some of the miners of the upper surface of leaves make large blotches, or tracts and when the mines are fresh the separated cuticle is whitish and very noticeable. The miners of the under surface, cause the upper cuticle to become discolored in patches, and this with the fold of the side of the leaf is often sufficient

to indicate the presence of a mine.

Usually the species are confined to a single plant; some, however, feed on several allied plants.

The larva never quits the mine and changes in it to a pupa. Some species makes no cocoon, others only a very slight one and others make one of grains of excrement woven together with silk.

Many of the species of the fall brood remain in the pupa state during the winter and appear as imagos in the spring, and some of the imagos that appear late in the fall seem to hybernate during the winter in the imago state. The spring brood of larvæ produce imagos in the summer.

When the imagos escape from the mine the pupa case is thrust through the separated cuticle, and left there after the escape of the imago.

1. *L. Salicifoliella*. During the latter part of June or early in July the leaves of yellow willow *Salix vitellina*, var. *S. alba*, should be searched for this insect. The mine is on the under surface usually near the base of the leaf and along the edge. I found these mines for the first time on the 23rd of July of the present year, but they were untenanted and the imagos had escaped, so that I am unable to furnish any further particulars respecting the species.

2. *L. Juglandiella*. The larva makes an elongated, rather wide tract on the upper surface of the leaves of black walnut, without folding the leaf, and may be found from the beginning to the middle of the month.

It is blackish or blackish-brown, with a few pale brownish dots on each side of the thoracic segments, and with the tip of the abdomen and head pale brown. It belongs to the second larval group described in the Proceedings of the Academy of Natural Sciences of Philadelphia November 1859 and may not be specifically distinct from *L. Caryæfoliella* described on page 323.

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## ASPIDISCA.

### HABITS OF THE LARVÆ.

The larvæ of this genus are characterized by making a small blotch mine between the cuticles of the leaves and when they have arrived at maturity weaving a cocoon between the cuticles, and cutting out of them a small, oval disk, thus leaving a hole in the mined place of the size and shape of the cocoon. In this respect they resemble the genus *Antispila*.

The larvæ of the two genera are, however, easily distinguished by their



color; the *Antispila* larvæ are white or whitish with black dorsal and ventral spots, while the *Aspidisca* larvæ are reddish-brown. The disk of the latter is likewise always fixed by a button of silk to some object in the neighborhood of the food plant and the pupæ must be kept in a dry vessel after the disks have been cut out, otherwise the insects will not come to maturity. On the other hand the *Antispilæ* require a damp situation after entering the pupa state.

1. *A. Ostryæfoliella*. The larvæ may be found on the leaves of Iron-wood during the latter part of September and early in October.

About the 10th of October all the mines are untenanted. There may be a spring brood in the leaves of *Ostrya* but I have not observed them.

The mine is large when compared to those found in the leaves of other plants and the hole left by cutting out the disk is out of proportion to the size of the mined portion.

2. *A. Saliciella*. From the beginning to the middle of July the larva may be taken on the leaves of yellow willow. The mine is very small, the excised portion with which the disk is formed, taking up the greater portion of it. I noticed in this larva a habit, which may be generic, but if so it has escaped my observation; the larva, after cutting out its disk, lets itself down by a thread, and in the middle of July the disks may be found suspended under Willows as the larva lets itself down to the surface of the ground. My specimens were taken on July 23rd when the mines were generally deserted.

A larva of this genus mines the leaves of wild cherry in July. The mines are usually near the base of the leaf and are more elongated than any others I have found. The mine is a short tract, not broader than the short diameter of the disk, which is cut out from the end of the mine, the hole occupying its entire breadth. If the species is distinct, and this I am disposed to doubt, it may be called *A. Pruniella*.

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## NEPTICULA.

### HABITS OF THE LARVÆ.

These larvæ mine very narrow serpentine paths in the interior of leaves, the mine being always on the upper surface. The mines vary much in form, being sometimes a slender gallery or line, either simple, or enlarged towards the end into a blotch, or a complete blotch.

When the larva is full fed it quits the mine, cutting for this purpose

the separated cuticle, in order to weave a minute cocoon.

The larvæ of some dipterous insects make mines that strongly resemble those of some of the *Nepticulæ*, but they may usually be distinguished by the more maggot-like appearance of the former.

1. *N. Corylifoliella*. The larva makes a long, winding, narrow tract in the leaves of Hazel in the latter part of July and the beginning of August and the fall brood may be found early in October. The *frass* or excrement of the larva is deposited along the middle of the tract, forming a minute central black line. The edges of the mine are smooth, and but little broader throughout its extent than the width of the miner.

The mine is left transparent by the larva from the beginning to the end.

There is another miner in this leaf that I suspect to be a dipteron. It makes a rather broad, tortuous tract, much broader than the preceding, and the "*frass*" is scattered in separated grains along the middle of the tract.

2. *N. Ostryæfoliella*. The larva in July and August makes a rather wide, most frequently much contorted, transparent mine, with a narrow, central, black line of "*frass*"; sometimes the early portion of the mine is filled up with "*frass*" and in others the line of *frass* is distinct from the beginning. From the middle to the end of the mine whence the larva escapes it will average nearly a line in width.

3. *N. Virginiella*. In the leaf of Iron-wood, *Ostrya*; makes a very narrow, long tract, not broader than the width of the larva, the interior of which is filled up with dispersed grains of *frass*, and which is dark brown whilst the larva is mining. The larva is very slender, of nearly uniform diameter, terminal segments pointed, pale green, with a darker green central line, head pale brown. It should be sought early in September.

On the 14th of the month it is nearly full fed.

4. *N. Platanella*. From the beginning to the middle of July the blotches produced by these larvæ may be found on the leaves of the Button-wood tree or Sycamore. The blotch is often extended over the early portion of the mine so as to obliterate it and again the early portion is present, being a slender line from which the blotch is formed.

The larva is pale green and the head pale brown and weaves a cocoon of a reddish-brown color during the latter days of July.

5. *N. Cratægifoliella*. The larva may be found in the leaves of Dwarf Thorn, *Cratægus parvifolia*, from the middle to the latter part of July. The mine is rather a wide tract, not long, most often tortuous, sometimes turned back on itself and when nearly straight, with irregular edges, having a narrow, contorted line of *frass* running through the mid-

dle of it. The later half of the mine will average at least a line in width.

The larva is rather thick, bright green. One larva which I observed especially mined a space of *five lines in three days*, at the end of which time it was full grown. Previously it was not more than half grown, and the distance mined while under observation forms nearly one half the length of the entire mine. The larva enters the pupa state during the latter part of July.

6. *N. Juglandifoliella*. The larva mines the leaves of Black Walnut from the latter part of July to the middle of August. The mine is a very narrow, whitish tract, very often recurved and slightly tortuous, somewhat, although slightly, enlarged at its end, with a very narrow central line of "frass." The larva is pale green, almost whitish, rather thick and resembling a dipteran.

I found a single specimen on the 27th of last August, when the mines appear to be usually untenanted, and very oddly, it escaped from its mine as I held the leaf, whilst looking unsuccessfully for another specimen.

7. *N. Caryæfoliella*. In the leaves of Hickory late in July and early in August. The mine is very like the preceding, but rather wider and longer and not so tortuous, but nearly always recurved and with the central "frass" line. The larva is pale green, with a dark green central line and brownish head. It is nearly or quite cylindrical, diameter uniform, the anal segments pointed. I have taken a specimen as late as the 30th of August, but at this date almost every mine found is untenanted.

8. *N. villosella*. May be found in the leaves of the Black-berry about the middle of July. The mine is very narrow only about wide enough to accomodate the miner, tortuous, with a central frass line. The larva is pale brownish and leaves its mine during the latter part of July.

This differs from *N. Rubifoliella* (see Proc. Acad. Nat. Sc. of Phila., June, 1860, p. 214.), both in the mine and color of the larva.

9. *N. Amelanchierella*. In the leaves of Service-berry or June-berry, *Amelanchier Canadensis*, in June and July. The mine rather a broad tract, sometimes much contorted, with rather irregular edges, placed most often towards the base of the leaf and having a rather broad "frass" line of a dark brown color.

10. *N? Prunifoliella*. Mines resembling those of the *Nepticulæ*, may be found in the leaves of wild cherry, *Prunus Scrotona*, during the latter part of July and early in August. It is more or less blotchy in the beginning, with frass dispersed and towards the end gathered into a rather broad line with the grains distinct. I have never found them tenanted

and it is quite possible that they are the work of dipterous larvæ. The mines are reddish-brown after the larvæ leave them.

11. *N. anguinella*. May be found in the leaves of oaks early in October and in the latter part of June. The mine is a very narrow serpentine tract, *which is filled or discolored throughout its length by blackish excrement*. The larva fits the mine closely, in color lemon-yellow, with ten square dark brown or blackish spots on the ventral surface.

Other mines in the same leaves have, sometimes, a broad frass line, sprinkled along the middle and often it begins as a slender line and these doubtless all belong to the same species.

12. *N. platea*. Mines oaks early in October. The mine is a moderately broad, winding, tract, with a broad line of dispersed grains of excrement. The larva is purplish, with a pale green vascular line and a row of reddish-brown dorsal dashes. The mine is much broader than that of the preceding miner.

13. *N. sagine*lla. Mines oaks early in October. I have found the larva abundant in the leaves of chestnut early in August. The larva makes a transparent, moderately broad, serpentine tract, gradually increasing in breadth from the beginning to the end where it is very slightly enlarged, with a central black frass line. It is about a line wide towards the larger end and from twelve to fifteen lines long. In the leaves of Chestnut the mine is often made along the edge of one of the coarse pointed teeth, running up to the point, whence the enlarged portion is turned inwards. In this leaf the mines are only twelve lines long.

The larva is dark bright green, with a darker vascular line; head brownish. The body is rather thick, and of nearly uniform diameter. The summer brood leave their mines towards the latter part of August, and in Oaks, I think in July.

There may be found in Oaks a mine very similar to the above, that is about a line wide towards its larger end, but which is about *two and a half inches long*. And another much narrower than either, which is not much contorted, but nearly straight, running along the veins and midrib and measuring at least *four inches in length*.

14. *N. Rosæfoliella*. In the leaves of Dwarf Wild Rose, *Rosa lucida*, early in September. The mine is very serpentine, frequently running around the edge of the leaf including its teeth, moderately broad, nearly filled with a broad blackish-brown frass line, the grains of which are dispersed or have a wavy arrangement, in the later part of the mine. In the early portion, the tract is filled with the excrement of the larva.

The larva is lemon-yellow; head and spot on the middle of the second segment pale brown. I have no doubt about the distinctness of this species from any other mining the leaves of plants allied to the rose family.

It may, however, be identical with or closely resemble the European *N. Anomalella*.

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## ORNIX.

### HABITS OF THE LARVÆ.

In early life the larvæ are leaf-miners and make mines on the under surface of leaves, difficult to be distinguished from those of the genus *Lithocolletis*. Towards maturity, however, they abandon their mines and feed under a portion of a leaf turned down from its edge, which is bound closely with silk. When they are full fed, a small portion of the edge of a leaf is turned over and the larva weaves its cocoon within the cover thus made.

*O. quadripunctella*. Early in August the larva may be found in the leaves of June-berry or Service-berry making lithocolletiform mines on the under surface. Towards the middle of the month, it abandons its mine and feeds under a turned down portion of the leaf. The larva is dirty greenish, with four black dots on the head and four on the dorsum of the second segment. It weaves its cocoon, which is reddish-brown, during the latter part of the month.

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## CATASTEGA.

### HABITS OF THE LARVÆ.

The insects included in this genus are not leaf-miners although they belong to the division of Micro-lepidoptera. I am not, perhaps, justified in forming a genus from the characters and habits of the larvæ and would not do it, if I were not convinced that the genus is undescribed. The insects may not belong to the group Tineina, and if not they most probably belong to the Phycites.

The larvæ make tubes in which they live, with the grains of their excrement and silk, on the underside of leaves, covering them with a tent or sheet of closely woven silk, under which they feed, by picking out the parenchyma of the leaves. They are extremely timid, and do not begin

to feed or weave until after night-fall. As the tube is increased in length, the silken tent is likewise advanced as it is necessary for the insect to obtain new feeding grounds.

1. *C. timidella*. The tube of the larva may be found on the under side of oak leaves in the latter part of August and early in September.

The larva is semi-cylindrical, wrinkled transversely, with a shield on the second segment; head small, pointed. It is very dark, concolorous green, shield paler; head pale brown, varied with darker brown.

The tube is very long, cylindrical, enlarging from the beginning which is a mere thread until it attains considerable thickness. The open extremity is covered by a web, in the middle of which is a gallery lined on each side with frass, and the larva passes through it in order to feed. In feeding the larva leaves the outer cuticle and the net-work of veins entire.

About the middle of September the larva abandons its tube to form a cocoon on the surface of the ground. I have seen numbers of this larva on oaks in Minnesota near Saint Paul.

2. *C. Aceriella*. The larva forms a moderately long, slender, cylindrical tube at the base of the leaf of maple, *A. rubrum*, early in July, and is covered with a thin transparent web closed in advance. The tube increases in diameter from the beginning to the end and is placed between two principal veins of the leaf, and the web is extended from one vein to the other.

3. *C? Hamaméliella*. The larva constructs a little, short tube of frass along the midrib of the leaf of Witch-Hazel, *Hamamelis Virginica*, during the latter part of September. The tube is begun in the angle made by a vein and the midrib and the triangular space between them is covered with a thin web of silk having beneath it the tube.

The larva is nearly cylindrical, slender, with head pointed. It is of a uniform, rather pale green color.

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## STATED MEETING, December 9.

President NEWMAN in the Chair.

Fifteen members present.

## REPORTS OF OFFICERS AND COMMITTEES.

The report of the Recording Secretary was read as follows:—

**REPORT OF THE RECORDING SECRETARY  
FOR 1861.**

The Recording Secretary in presenting his Report of the operations of the Society during the past year, takes this opportunity to congratulate the members upon its present prosperous condition and upon the bright prospects which loom up in the future.

The present Report will necessarily be brief because of the plan adopted during the past year, of publishing the Proceedings of the Society at short intervals. By referring to its pages abundant information can be obtained concerning the transactions of the Society, and the rapid progress that has been made within the short space of one year.

At all times since the organization of the Society, its members have been much gratified at the success that has attended their efforts, and it may be confidently asserted that what was but recently looked upon as an experiment, may now be considered an established fact.

The contributions to the Cabinet during the past year have been both numerous and valuable; the following particulars have been extracted from the Reports of the Committees in charge of the various departments which will show the present prosperous condition of the Cabinet:—

In Coleoptera there is an increase of 520 species, 8,885 specimens during the past year, making a total of 2,550 species, 20,210 specimens now in the collection. The principal donors are Dr. T. B. Wilson, Henry Ulke, John Pearsall, Dr. G. H. Horn, J. H. B. Bland, William Evett and J. D. Wingate. The collection contains a few types of new species described by Dr. Horn, and also several unique specimens still undescribed.

The want of an Elementary work on the Lepidoptera of North America, has done much to decrease the interest in this department, and the difficulty of procuring correct names for our species has also been the means of discouraging many in collecting, consequently the increase in the collection during the past year has been small. The collection now contains 519 species, 3,414 specimens an increase of 198 species, 2,169 specimens during the past year.

The collection of Diptera, though not large, contains many rare and beautifully preserved specimens carefully named and classified. During the past year the increase has been small, owing to the difficulty of obtaining names for the species, whereby about 500 species are reserved by the members for presentation so soon as correct names can be procured for them. The collection now contains 224 species, 561 specimens, an increase of 75 species, 235 specimens during the past year. The principal donors are Dr. T. B. Wilson, and Baron R. Osten Sacken who has very kindly presented the Society with types of his Monograph of *Limnobiaceæ*, published in the Proceedings of the Academy of Natural Sciences of Philadelphia, August 1859.

The collections of Hymenoptera, Neuroptera &c., are yet small, but have bright prospects of a rapid increase during the ensuing year. Through the kindness of Mr. Edward Norton of Farmington, Conn., (*Hymenoptera*) and Mr. P. R. Uhler of Baltimore, Md., (*Neuroptera* &c.) the species in the collections have been correctly named and arranged. Of Hymenoptera the collection contains 136 species, and of Neuroptera &c., 249 species, an increase of 311 species during the past year.

As a whole, the interest manifested by the members in building up the collections of the Society has been exceedingly liberal and enthusiastic.

The cabinet was commenced in January 1860 and since then 3,678 species have been presented. The collection of Coleoptera is arranged in two large and handsome cases of drawers, for which the Society is indebted to our fellow-member Dr. Thomas B. Wilson; the remainder of the collection is arranged in boxes. The order and condition of the Cabinet is excellent and, unlike large collections generally, it is entirely free of all infection.

During the past year several valuable additions have been made to the Library, which now contains 129 volumes and pamphlets. It is to be hoped that the members and correspondents will exert themselves for the increase of this department, as it is a very important necessity.

One of the most prominent and interesting additions to the Society during the past year has been the establishment of a publication to be issued every two or three months and containing extracts from the minutes of the meetings, and also any papers on entomological science that may be received from contributors and ordered to be published. Through the liberality of Dr. T. B. Wilson, Dr. Samuel Lewis, E. T. Cresson, J. Frank Knight, George Newman, Robert Jack, William Evett, James Ridings, John Knight, J. H. B. Bland, Dr. G. H. Horn and J. D. Dowling, suffi-



cient funds were raised to purchase a complete outfit of necessary printing materials. With this encouragement the publication was immediately commenced. The first and second numbers were printed on a small press page at a time, occupying much time and labor. As the material increased a larger press was procured, which will answer all purposes until the receipts are sufficient to employ a printer. The only expense attending the publication is the ink and paper. The composition, press-work &c., is done voluntarily by the members of the Publication Committee, and our fellow-member Mr. C. F. Parker to whom the Society is indebted for binding the publication. The press-work is executed in the evenings by Mr. John Meichel to whom much praise is due for the style in which it is done considering the disadvantages of working by gas-light. Up to the present time three interesting numbers (72 pages in all) have been issued and the fourth is now in press and will soon be ready for distribution. Since the commencement, eight papers have been presented for publication, viz:—

By E. T. Cresson.—1. Catalogue of the Cicindelidæ of North America.  
2. Catalogue of the described species of Tenthredinidæ and Uroceridæ, inhabiting North America.

By P. R. Uhler.—Descriptions of a few new species of Hemiptera and observations upon some already described.

By Geo. H. Horn.—Notes and Observations on the Habits of some Coleopterous Larvæ and Pupæ, two papers.

By Baron R. Osten Sacken.—On the Cynipidæ of the North American Oaks and their Galls.

By Brackenridge Clemens, M. D.—Micro-Lepidopterous Larvæ. Notes on a few species, the imago of which are probably undescribed.

By J. H. B. Bland.—A Catalogue of the Longicorn Coleoptera taken in the vicinity of Philadelphia.

The publication is sent to the principal scientific institutions in this country, and also to the Entomological Societies in Europe, through the Smithsonian Institution to whom the Society is indebted for its kind and liberal offer to transmit the publications and exchanges of the Society to and from Europe.

During the past year ending November 30th, 1861, there have been elected 9 members and 10 correspondents. The Society now numbers 53 members and 27 correspondents.

All of which is respectfully submitted by

J. FRANK KNIGHT,  
Recording Secretary.

*December 9th, 1861.*

The Annual Reports of the Corresponding Secretary, Treasurer and Standing Committees on Coleoptera, Lepidoptera, Hymenoptera, Diptera, Neuroptera &c., Library and Publication were read.

The Committee on Mr. Bland's paper read November 11th, reported in favor of its publication in the Proceedings of the Society.

#### DONATIONS TO CABINET.

136 specimens of *Hymenoptera*, 9 *Hemiptera*, 6 *Neuroptera*, and 3 *Coleoptera*, from Dr. T. B. Wilson.

20 specimens of *Hemiptera*, 20 *Neuroptera*, and 16 *Hymenoptera*, from Charles Wilt.

90 specimens of *Coleoptera*, from John Pearsall.

24 specimens of *Coleoptera*, from Rev. J. H. McFarland.

7 specimens of *Hemiptera*, 5 *Hymenoptera*, 4 *Lepidoptera*, and 4 *Diptera*, from Dr. G. H. Horn.

15 specimens of *Coleoptera*, from Dr. Samuel Lewis.

4 specimens of *Coleoptera*, from Robert Stretton.

Also a very fine male specimen of *Dorcus brevis* Say, captured in New Jersey and presented by George Newman.

Total,—374 specimens.

#### DONATIONS TO LIBRARY.

*Prairie Farmer* (Chicago, Ill.), Vol. 8, Nos. 18 to 21. From the Editors.

*Zoology of the Valley of the Great Salt Lake of Utah. Insects by Prof. S. S. Haldeman. Philadelphia, 1852. Deposited by Chas. Wilt.*

#### WRITTEN COMMUNICATIONS.

Letters were read from Mr. H. T. Fay of Columbus, Ohio, and Mr. W. H. S. Wood of New York, acknowledging their election as *Correspondents* of the Society.

The following papers were presented for publication in the Proceedings: "Descriptions of some Larvæ of North American Coleoptera, by Baron R. Osten Sacken."

"New American Micro-Lepidoptera, by Brackenridge Clemens, M. D."

"The Tarantula (*Mygale Hentzii Girard*) and its destroyer (*Pompilus formosus Say*), by S. B. Buckley."

And were referred to Committees.

#### ELECTIONS.

Messrs. John McMeichel, and George W. Galliard, of this city were

elected *Members* of the Society.

And Cyrus Thomas Esq., of Murphysboro, Illinois, was elected a *Correspondent*.

The Society then proceeded to elect Officers and Standing Committees for the ensuing year, with the following result:—

### OFFICERS.

#### PRESIDENT.

George Newman.

#### VICE PRESIDENT.

James H. B. Bland.

#### CORRESPONDING SECRETARY.

Ezra T. Cresson.

#### RECORDING SECRETARY.

J. Frank Knight.

#### TREASURER.

Charles Wilt.

### STANDING COMMITTEES.

#### COLEOPTERA.

J. H. B. Bland,	G. H. Horn, M. D.,	Samuel Lewis, M. D.
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#### LEPIDOPTERA.

James Ridings,	Charles Blake,	Horace B. Mitchell.
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#### HYMENOPTERA.

Ezra. T. Cresson,	James Ridings,	John Meichel.
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#### DIPTERA.

T. B. Wilson, M. D.,	Charles Wilt,	C. F. Parker.
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#### NEUROPTERA, &c.

William Evett,	J. Frank Knight,	Robert Nuttall.
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#### LIBRARY.

Samuel Lewis, M. D.,	C. F. Parker,	Charles Blake.
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#### PUBLICATION.

T. B. Wilson, M. D.,	Ezra T. Cresson,	John Meichel.
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**Catalogue of the LONGICORN COLEOPTERA taken in the vicinity  
of Philadelphia.**

BY JAMES H. B. BLAND.

The preparation of the following Catalogue was suggested by the large number of *Cerambycidæ* etc., which can be collected in the neighborhood of Philadelphia. In consequence of the numerous wood wharves and the commerce with different parts of our coast, many species have been introduced which had previously no habitation in our region.

On account of the beauty and size of many of the species, this family has been a favorite with collectors, and the addition of an occasional new form to our fauna has still further stimulated exertion. Many forms heretofore considered rare, have, by careful observation of habits and localities, been rendered tolerably abundant.

In the preparation of this list several large and valuable collections have been consulted, for the assistance thus derived acknowledgments are given in their proper places. Much is also due to the individual experience of members. To Messrs. Henry Feldman and George Newman, I acknowledge much indebtedness, as there is probably no gentlemen to whom as much is due, for their labors in making known the coleopterous fauna of the neighborhood of Philadelphia.

The sign (\*) appended to the names of species, indicates the possession of specimens by the Society.

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CATALOGUE. 1211

**PARANDRA** Latr.

- . . *brunnea* Fabr. (*Tenebrio*) Ent. Syst. Suppl. p. 49. (\*)  
Common everywhere in June.

**ORTHOSOMA** Serv.

- . . *cylindricum* Fabr. (*Prionus*) Syst. El. 2, 261. (\*)  
Found in Pine woods, under logs and stones, in July.

**PRIONUS** Geoffr.

- . . *lavigatus* Harris, Trans. Nat. Hist. Soc. Hartford, p. 83. (\*)  
Inhabits Pine Forests, from June to September. Rare.
- . . *laticollis* Drury, (*Cerambyx*) Ins. vol. 1, pl. 37, fig. 2. (\*)  
In Pine woods near Camden, N. J., from June to September.

**SPHENOSTETHUS** Hald.

- serripennis* Hald. Proc. Acad. Nat. Sc. Phila. 3, 126. (\*)  
A fine specimen of this rare insect was captured by Mr. George Newman, on the wood wharves in the summer of 1859.

**PURPURICENUS** Serv.

*humeralis* Fabr. (Cerambyx) Syst. El. 2, p. 274. (\*)

On Hickory, near Timber Creek, N. J., also on the Elder when in blossom.

*axillaris* Hald. Trans. Am. Phil. Soc. 10, p. 31. (\*)

Taken on Hickory and Blackberry in June.

**EBURIA** Serv.

*quadriginata* Say, (Stenocorus) Journ. Acad. Nat. Sc. 5, p. 275. (\*)

This fine insect is rather rare in this locality, it has been collected in the wood near Darby in the month of June.

**CERASPHORUS** Serv.

*cinctus* Drury, (Cerambyx) Insects, vol. 1, pl. 37, fig. 6. (\*)

Abundant on the wood wharves in the month of June.

**ELAPHIDION** Serv.

*notatum* Oliv. (Callidium) Ent. 4, p. 61; tab. 7, fig. 89. (\*)

Common everywhere in June.

*rufulum* Hald. Trans. Am. Phil. Soc. 10, p. 32. (\*)

Frequently found on the Oak in June. I have known it to be taken on the Maple trees in the streets of the city.

*atomarium* Drury, (Cerambyx) Insects, vol. 1, pl. 41, fig. 6. (\*)

On the wood wharves in June.

*vicinum* Hald. Trans. Am. Phil. Soc. 10, p. 33. (\*)

Taken on the wood wharves in the month of June.

*villosum* Fabr. (Stenocorus) Syst. El. 2, p. 311. (\*)

Found on Oak trees in a wood near the Media Rail-road, in June.

*unicolor* Randall, (Stenocorus) Journ. Bost. Soc. Nat. Hist. 2, p. 42. (\*)

Found in the wood in the neighborhood of Girard Avenue Bridge in June. Not common.

**TRAGIDION** Serv.

*coquus* Linn. (Cerambyx) Syst. Nat. Fabr. (Lamia) Syst. El. 2, p. 300. (\*)

A specimen was captured by Mr. S. H. Shinn, near Red Bank, in Sept.

*fulvipenne* Say, (Callidium) Journ. Acad. Nat. Sc. 3, p. 414. (\*)

Several specimens have been collected near Red Bank, N. J., in June.

**ORIOCEPHALUS** Muls.

*obsoletus* Randall, (Callidium) Journ. Bost. Soc. Nat. Hist. 2, p. 27. (\*)

In Pine woods in July.

**ASEMUM** Esch.

*maestum* Hald. Trans. Am. Phil. Soc. 10, p. 35. (\*)

Common in various localities.

**HYLOTRUPES** Serv.

*bajulus* Linn. (Cerambyx) Syst. Nat. 2, p. 636. (\*)

Found on the wood wharves in the month of June.

**CALLIDIUM** Fabr.

*antennatum* Newm. Ent. Mag. 5, p. 393. (\*)

Very common on the Pine in June.

**PHYMATODES** Muls.

*aereus* Newm. Ent. Mag. 5, p. 393. (\*)

On the wood wharves in June.

*variabilis* Linn. (Cerambyx) Syst. Nat. 2, p. 635. (\*)

Very abundant on the wood wharves in June.

*amoenus* Say, (Callidium) Journ. Acad. Nat. Sc. 3, 413. (\*)

On the wood wharves in the month of June.

*varius* Fabr. (Callidium) Syst. El. 2, p. 345. (\*)

Very common on the wood wharves in June.

**PHYSOCNEMUM** Hald.

*brevilineum* Say, (Callidium) Journ. Acad. Nat. Sc. 3, p. 413. (\*)

Found on the wood wharves in June. Not common.

*lignum* Fabr. (Callidium) Syst. El. 2, p. 341. (\*)

I have collected this species near Camden, N. J., in the last week in March, by stripping the bark from Cedar stumps.

**TYLONOTUS** Hald.

*bimaculatus* Hald. Trans. Am. Phil. Soc. 10, p. 38. (\*)

This rare insect has been found under the bark of Tulip-poplar, and on the Ash.

**SMODICUM** Hald.

*cucujiforme* Say, (Callidium) Journ. Acad. Nat. Sc. 5, p. 277. (\*)

Found on Oak in June, near Gloucester, New Jersey.

**ARHOPALUS** Serv.

*pictus* Drury, (Cerambyx) Insects, vol. 1, pl. 41, fig. 2. (\*)

Abundant on the Hickory in spring, and on Solidago in autumn.

*nobilis* Harris, (Clytus) Trans. Nat. Hist. Soc. Hartford, p. 84. (\*)

This species is quite rare in this locality.

*fulminans* Fabr. (Clytus) Syst. El. 2, p. 346. (\*)

Taken on the wood wharves in June.

**ERIPHUS** Serv.

*suturalis* Say, Journ. Acad. Nat. Sc. 3, p. 411. (\*)

Taken on the Ox-eye daisy in August, near Gloucester, New Jersey.

**CLYTUS Fabr.**

*scutellaris* Oliv. (Callidium) Ent. No. 70, 51; tab. 5, fig. 52. (\*)

Taken on flowers in July. Not common.

*luscus* Fabr. Syst. El. 2, p. 347. (\*)

On Hickory in July, in a wood near the Media Rail-road.

*erythrocephalus* Fabr. Syst. El. 2, p. 350. (\*)

Very common on Hickory in June.

*capraea* Say, Journ. Acad. Nat. Sc. 3, p. 424. (\*)

On flowers in June. Rare.

*marginicollis* Lap. Mon. p. 41; tab. 9, fig. 50. (\*)

At the wood wharves, on Pine, in April. Generally not common.

*ruricola* Oliv. (Callidium) Ent. 4, p. 65. (\*)

Taken on the wood wharves. Rather rare in this locality.

*nitidus* Horn, Proc. Acad. Nat. Sc. 1860, p. 570; pl. 8, fig. 2. (\*)

One specimen found in Gloucester County, New Jersey. Very rare.

*pubescens* Dej. Cat. Hald. Trans. Am. Phil. Soc. 10, p. 40. (\*)

In Pine woods in the month of July. Not common.

*colonus* Fabr. Syst. El. 2, p. 345. (\*)

Abundant on Pine, in June.

*4-maculatus* Hald. Trans. Am. Phil. Soc. 10, p. 41. (\*)

Found on the Black Elder in June. Very rare.

**CYRTOPHORUS Lec.**

*verrucosus* Oliv. (Callidium) Ent. 4, p. 67. (\*)

On the Walnut in May. Not common.

**EUDERCES Lec.**

*picipes* Fabr. (Clytus) Syst. El. 2, 353. (\*)

Taken on the White Thorn when in blossom.

*pini* Oliv. (Clytus) Ent. 4, p. 71; tab. 8, fig. 105. (\*)

On scrub Oak near Timber Creek, New Jersey, in June. Rare.

**OEBRIUM Serv.**

*rubrum* Newm. Ent. Mag. 5, p. 395.

Taken on Ash. Very rare.

*pallidum* Say, (Callidium) Journ. Acad. Nat. Sc. 3, p. 412. (\*)

On Oak in June. Rare.

**IBIDION Serv.**

*4-maculatum* Hald. (Heterachthes) Trans. Am. Phil. Soc. 10, p. 43. (\*)

Found on Hickory from June to August. Rare.

**NECYDALIS Linn.**

*mellitus* Say, (Molorchus) Journ. Bost. Soc. Nat. Hist. 1, p. 194. (\*)

On flowers, in July. Very rare.

**HELIOMANES** Newm.

- × *bimaculatus* Say, (*Molorchus*) Journ. Acad. Nat. Sc. 3, p. 428. (\*)  
Taken on the Walnut in June.

**ACANTHODERES** Serv.

*Morrisi* Uhler, Proc. Acad. Nat. Sc. Phila. 7, p. 417.

I know of but two specimens of this rare and beautiful insect found in this locality; they were captured by Mr. Henry Feldman.

*quadrigibbus* Say, (*Acanthocinus*) Journ. Bost. Soc. Nat. Hist. 1, p. 195. (\*)

On the wood wharves in June. Rare.

✓ *decepiens* Hald. (*Egomorphus*) Trans. Am. Phil. Soc. 10, p. 45. (\*)

Found on Oak in June.

**GRAPHISURUS** Kirby.

✓ *fasciatus* DeGeer, (*Cerambyx*) Insects, 5, p. 114; tab. 14, fig. 7. (\*)

On Oak in June. Abundant.

✓ *pusillus* Kirby, Fauna Bor. Am. 4, p. 167. (\*)

Found on Oak trees in a wood near the Media Rail-road, in June.

**ÆDILIS** Serv.

• *nodosus* Fabr. (*Lamia*) Syst. El. 2, p. 289. (\*)

Found under the bark of Pine from June to September. The specimens collected in this locality are quite small compared with those found in the Pine forests of New Jersey.

✓ *obsoletus* Oliv. (*Lamia*) Ent. 67, 13, 90. (\*)

Taken under the bark of Pine stumps. Not common.

**LEPTOSTYLUS** Lec.

✓ *aculiferus* Say, (*Lamia*) Journ. Acad. Nat. Sc. 3, p. 329. (\*)

On Oak trees.

✓ *commixtus* Hald. (*Amniscus*) Trans. Am. Phil. Soc. 10, p. 47. (\*)

Taken on Pine trees.

✓ *macula* Say, (*Lamia*) Journ. Acad. Nat. Sc. 5, p. 268. (\*)

Found on Oak in June.

*fascicularis* Harris, (*Lamia*) Trans. Nat. Hist. Soc. Hartford, p. 88.

On Oak trees in the month of June.

**LIOPUS** Serv.

✓ *maculatus* Hald. (*Hyperplatys*) Trans. Am. Phil. Soc. 10, p. 49. (\*)

On Maple trees in July.

✓ *symmetricus* Hald. Trans. Am. Phil. Soc. 10, p. 50.

Taken on Oak and Walnut in June. Rare.

✓ *angulatus* Lec. Journ. Acad. Nat. Sc. 2nd. ser. 2, p. 172.

On the wood wharves.



**biguttatus** Lec. Journ. Acad. Nat. Sc. 2nd. ser. 2, p. 172. (\*)

Taken on the wood wharves.

✓ **variegatus** Hald. (Amniscus) Trans. Am. Phil. Soc. 10, p. 47. (\*)

Found on Pine trees.

✓ **alpha** Say, (Lamia) Journ. Acad. Nat. Sc. 5, p. 270. (\*)

On Oak and Mulberry trees.

#### **EUPOGONIUS** Lec.

✓ **tomentosus** Hald. (Desmiphora) Trans. Am. Phil. Soc. 10, p. 50. (\*)

On Pine wood in June.

✓ **vestitus** Say. (Saperda) Journ. Acad. Nat. Sc. 5, p. 273. (\*)

Found on Oak in June.

#### **POGONOCHERUS** Latr.

✓ **mixtus** Hald. Trans. Am. Phil. Soc. 10, p. 50. (\*)

In Pine woods in July.

#### **MONOHAMMUS** Serv.

✓ **titillator** Fabr. (Lamia) Syst. El. 2, 295. (\*)

Common on Pine wood in June.

✓ **confusus** Kirby, Fauna Bor. Am. 4, p. 168. (\*)

A specimen of this fine insect has been captured flying in the streets of Philadelphia in June.

#### **CACOPLIA** Lec.

✓ **pruinosa** Lec. Journ. Acad. Nat. Sc. 2nd. ser. 2, p. 149.

Taken on Oak in June. Very rare.

#### **GOES** Lec.

✓ **tigrina** De Geer, (Cerambyx) Insects, 5, 113; tab. 14, fig. 6. (\*)

Taken on Oak trees in June.

**tessellata** Hald. (Monohammus) Trans. Am. Phil. Soc. 10, p. 51.

Found on Oak near Timber Creek, New Jersey, in June. Very rare.

✓ **pulchra** Hald. (Monohammus) Trans. Am. Phil. Soc. 10, p. 52. (\*)

On Hickory in June, in a wood near the Media Rail-road.

✓ **pulverulenta** Hald. (Monohammus) Trans. Am. Phil. Soc. 10, p. 51. (\*)

Found on Beach in June.

✓ **debilis** Lec. Journ. Acad. Nat. Sc. 2nd. ser. 2, p. 150. (\*)

Taken on Oak trees in June.

#### **TETRAOPES** Dalm.

✓ **canteriator** Drapiez, (Lamia) Ann. Gen. Sc. Phys. 2, p. 47; tab. 10, fig. 6. (\*)

Taken on the milk-weed (*Asclepias*) in June.

**tetrophthalmus** Forster, (Cerambyx) Cent. Ins. 41. (\*)

Abundant on *Asclepias* in June.

**PSEMOCEBUS** Lec.

- supernotatus** Say, (Clytus) Journ. Acad. Nat. Sc. 3, p. 425. (\*)  
Found on Oak and Hickory. Not common.

**DECTES** Lec.

- spinosa** Say, (Lamia) Journ. Acad. Nat. Sc. 5, p. 271. (\*)  
On ripe Wheat, from June to August.

**HIPPOPSIS** Serv.

- lemniscata** Fabr. (Saperda) Syst. El. 2, p. 330. (\*)  
Taken in June. Very rare.

**HETOMIS** Hald.

- cinerea** Oliv. (Saperda) Ent. 4, p. 68; tab. 3, fig. 35. (\*)  
Common on Mulberry in July.

**DORCASCHEMA** Lec.

- Wildii** Uhler, Proc. Acad. Nat. Sc. 7, p. 417. (\*)  
Found on Mulberry in July.
- alternatum** Say, (Saperda) Journ. Acad. Nat. Sc. 3, p. 405. (\*)  
Abundant on Mulberry in July.
- nigrum** Say, (Saperda) Journ. Acad. Nat. Sc. 5, p. 272. (\*)  
On Hickory in July. Not common.

**SAPERDA** Fabr.

- obliqua** Say, Journ. Acad. Nat. Sc. 5, p. 274. (\*)  
This fine species was collected in abundance in June and July of this year, near Timber Creek, New Jersey.
- candida** Fabr. Syst. El. 2, 319. (\*)  
Common on Apple and Quince in July.
- vestita** Say, Long's Exped. 2, p. 290. (\*)  
Found on the Linden in June. Abundant,
- moesta** Lec. Agassiz Lake Superior, p. 234. (\*)  
Very rare in this locality.
- discoidea** Fabr. Syst. El. 2, p. 322. (\*)  
Taken on Hickory in July. Not common.
- puncticollis** Say, Journ. Acad. Nat. Sc. 3, 406. (\*)  
Found in June and July. Very rare.
- lateralis** Fabr. Syst. El. 2, p. 323. (\*)  
Very common on Hickory in June.
- tridentata** Oliv. Ent. 4, p. 23. (\*)  
Not common in this locality.

**CYRTINUS** Lec.

- pygmaeus** Hald. (Clytus) Trans. Am. Phil. Soc. 10, p. 42.  
This pretty little insect is very seldom taken in this neighborhood.

**STENOSOMA** Muls.

- ✓ *sordidum* Hald. (Ataxia) Trans. Am. Phil. Soc. 10, p. 56. (\*)  
On the wood wharves. Rare.

**OBBEREA** Muls.

- ✓ *ruficollis* Fabr. (Saperda) Syst. El. 2, p. 322. (\*)  
Found near Gloucester, New Jersey in June.  
*mandarina* Fabr. (Saperda) Syst. El. 2, p. 321. (\*)  
Taken on flowers in June.  
✓ *tripunctata* Fabr. (Saperda) Syst. El. 2, p. 321. (\*)  
On flowers in June.

**DISTENIA** Serv.

- undata* Fabr. (Stenocorus) Syst. El. 2, p. 311. (\*)  
Taken on Hickory and Beach, west of the Schuylkill River, in June,

**ENCYCLOPS** Newm.

- ✓ *caeruleus* Say, (Leptura) Journ. Acad. Nat. Sc. 5, p. 280. (\*)  
On the Blackberry in June.

**DESMOCERUS** Serv.

- palliatu*s Forster, (Cerambyx) Cent. Ins. p. 40. (\*)  
Very common on the Elder in June.

**RHAGIUM** Fabr.

- ✓ *lineatum* Oliver, (Stenocorus) Hist. des Ins. 4, p. 13. (\*)  
Very common under the bark of Pine wood in the spring.

**TOXOTUS** Serv.

- cylindricollis* Say, Journ. Acad. Nat. Sc. 3, 417. (\*)  
Taken on bushes and plants in June. Not common.  
*trivittatus* Say, Journ. Acad. Nat. Sc. 3, p. 422. (\*)  
A specimen of this fine insect was captured by Mr. S. H. Shinn, in the latter part of June, opposite Manayunk.  
*cinnamopterus* Randall, (Leptura) Journ. Bost. Soc. Nat. Hist. 2, p. 45. (\*)  
On Walnut in May. Rare.

**ACMÆOPS** Lec.

- quadrivittatus* Linn. (Leptura). Hald. Trans. Am. Phil. Soc. 10, p. 65. (\*)  
Taken on Tulip-poplar when in blossom.

**GAUROTUS** Lec.

- cyanipennis* Say, (Leptura) Journ. Acad. Nat. Sc. 3, 423. (\*)  
This species is common on Cedar trees, near Wissahickon Creek, also on the Tulip-Poplar in June.

**CENTRODERA** Lec.

*pieta* *Hald.* (*Toxotus*) *Trans. Am. Phil. Soc.* 10, p. 58. (\*)

A specimen of this pretty insect was captured in June last at Frankford.

**STRANGALIA** Serv.

*emarginata* *Fabr.* (*Leptura*) *Syst. El.* 2, p. 356. (\*)

One specimen found on the Wild Rose, near Frankford.

*bicolor* *Swed.* (*Leptura*) *Act. Holm.* 3, p. 197. (\*)

Taken on flowers in June.

*lateicornis* *Fabr.* (*Leptura*) *Syst. El.* 2, 361. (\*)

On the blossoms of the Sweet Briar.

*famelica* *Newm.* *Ent. Mag.* *Hald. Trans. Am. Phil. Soc.* 10, 61. (\*)

On the blossoms of the Sweet Briar.

*acuminata* *Oliv.* (*Leptura*) *Ent.* 73, 3, 35. (\*)

Taken on Sweet Briar.

*lineola* *Say.* (*Leptura*) *Journ. Acad. Nat. Sc.* 3, 421. (\*)

On the blossoms of Sweet Briar.

*cruentata* *Hald.* (*Stenura*) *Trans. Am. Phil. Soc.* 10, 64. (\*)

One specimen collected on the wood wharves in June, by Mr. C. Wilt.

*cordifera* *Oliv.* (*Leptura*) *Ent.* 73, 41. (\*)

On Oak trees in June.

**TYPOCERUS** Lec.

*fugax* *Fabr.* (*Leptura*) *Syst. El.* 2, 359. (\*)

Taken on the Elder when in blossom.

**LEPTURA** Linn.

*cribripennis* *Lec.* *Coleoptera of Kansas and New Mexico*, p. 21. (\*)

One specimen collected on flowers in West Phila., by Mr. G. Newman.

*rubrica* *Say.* *Journ. Acad. Nat. Sc.* 3, 418. (\*)

On the Elder when in blossom.

*vagans* *Oliv.* *Ent.* 73, 46. (\*)

Taken on flowers in June and July. Not common.

*8-notata* *Say.* *Journ. Acad. Nat. Sc.* 3, 419. (\*)

Found on Hickory. Rare in this locality.

*vittata* *Oliv.* *Ent.* 4, 30. (\*)

Common on Hickory in June.

*pubera* *Say.* *Journ. Acad. Nat. Sc.* 5, 279. (\*)

On flowers.

*mutabilis* *Newm.* *Ent. Mag.* p. 71. (\*)

Also found on flowers. Rare.

*nitens* *Forster*, *Cent. Ins.* 45. (\*)

On Oak bushes. Common.



PROCEEDINGS  
OF THE  
ENTOMOLOGICAL SOCIETY  
OF PHILADELPHIA.

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STATED MEETING, JANUARY 13.

President N. WMAN in the Chair.

Eighteen members present.

REPORTS OF COMMITTEES

The Committees on the papers of Baron Osten Sacken and Mr. Buckley, read December 9th, reported in favor of their publication in the Proceedings of the Society.

DONATIONS TO CABINET.

520 specimens of *Lepidoptera*, from James Ridings.

223 specimens of *Coleoptera*, and 137 *Hymenoptera*, from Dr. T. B. Wilson.

224 specimens of *Coleoptera*, from William Evett.

17 specimens of *Diptera*, and 4 *Aptera*, and 3 *Coleoptera*, from Thomas Cox.

21 specimens of *Coleoptera*, from Rev. J. H. McFarland.

10 specimens of *Coleoptera*, from Henry Feldman.

10 specimens of *Coleoptera*, from John Pearsall.

3 specimens of *Diptera*, from George Newman.

1 specimen of *Coleoptera*, 1 *Hymenoptera*, and 1 *Orthoptera*, from S. H. Shinn.

1 specimen of *Diptera*, from Charles Wilt.

Total,—1176 specimens.

#### DONATIONS TO LIBRARY.

*American Bee Journal*, Vol. 1, Philadelphia, 1861. Presented by Charles A. Blake.

*Proceedings of the Boston Society of Natural History*, Vol. 8, pages 193—224. From the Society.

*Prairie Farmer* (Chicago, Ill.), Nos. 22 to 25 of Vol. 8, and Nos. 1 and 2 of Vol. 9. From the Editors.

*Proceedings of the Society for November and December*, 1861. From the Publication Committee.

#### WRITTEN COMMUNICATIONS.

A communication was read from Mr. Evett, reporting the capture of the following insects during last month:—

*Coptodera viridipennis* Lec., under bark of Tulip-Poplar.

*Plochionus timidus* Hald., under bark of Black Oak.

*Schizogenius* ——— under stones.

*Endecatomus rugosus* Rand., under bark of Tulip-Poplar.

*Hippodamia parenthesis* Say, under stones.

And 30 specimens of Winter Tortrix under bark of Black Oak.

A letter was read from Mr. Cyrus Thomas of Murphysboro, Illinois, acknowledging his election as a Correspondent of the Society; and also stating that during last season he ascertained that the *Galgulus oculatus* in his section of the country, feeds almost exclusively on a species of *Tridactylus* (or *Xya*) that he has named the *T. Illinoiensis*. It is some larger than the *apicalis* Say, and about the size of *terminalis* Uhler.

A paper was presented for publication in the Proceedings, entitled "A notice of several new species of Tenthredinidæ, by Edward Norton."

And was referred to a Committee.

#### ELECTIONS.

Mr. William A. Nason of Chicago, Illinois, and Mr. Abraham S. Reber of Howard, Centre County, Pennsylvania. were elected *Correspondents* of the Society.

## Description of some larvæ of North American Coleoptera.

BY BARON R. OSTEN SACKEN.

The fourteen larvæ described in the sequel belong all (with the exception of *Fornax* and *Epilachna*), to genera the preparatory states of which have not, to my knowledge, been made known before. The most interesting among them are *Ptilodactyla*, the discovery of which will probably contribute to establish the true location of this genus in the system; *Zenoa*, belonging to the interesting family of *Rhipiceridæ*; *Parandra*, a genus forming the extreme limit of the extensive family of *Longicornis*, and the three unknown larvæ, which, after the discovery of their imagos, will add an entirely new form to the system of coleopterous larvæ.

The larvæ of *Ptilodactyla*, *Fornax badius*, *Parandra*, *Arhopalus* and *Centronopus* were discovered by Dr. Horn in Philadelphia, to whose kind communication I am indebted for them.

*Zenoa* and *Prionocyphon* were found by Benj. D. Walsh, Esq., Rock Island, Illinois.

*Copris carolina*, *Psenocerus* and *Epilachna* were reared by myself.

Of the three unknown larvæ two species were found among alcoholic specimens of coleoptera from the southern parts of this country and the third was discovered by Dr. Horn.

All the specimens described had been preserved in alcohol.

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**COPRIS CAROLINA** Linn.

(Plate 1. Fig. 1.)

The larva has the general appearance of all the larvæ of *Lamellicornis*, only the curved or doubled shape, peculiar to them, is more striking here than in any other, the ventral segments of the abdomen being considerably contracted, whereas the dorsal ones are very convex and distended into a hump-like expansion, through which the contents of the intestinal canal can be seen.

The length of the larva, if measured along the curved axis of the body, is about two inches; its color, a dirty yellowish-white; the skin is glabrous, except a few scattered hairs.

*Head* rounded, brownish-yellow with darker spots; vertex convex, with an impressed line, emitting two, less distinct branches, in the middle; front flattened; epistoma trapezoidal, with an impression each side; *labrum* short, transverse, narrowed at the base, bisinuated anteriorly and beset with short, erect bristles; *antennæ* 4-jointed, about as long as epistoma and labrum taken together, inserted on a tubercle, which might almost be taken for a



fifth joint; joints cylindrical; the first a little longer than the second; second and third of the same length; fourth joint short, slender, attenuated at the tip, inserted at an angle to the axis of the antenna; *mandibles* horny, very strong, with three blunt denticulations at the tip; their stout basal portion emits a strong tooth, concealed inside of the mouth (this is the description of the *left* mandible; the *right* mandible of my specimen seems to be more worn, as it has neither denticulations at the tip, nor an inner tooth); *maxillæ*: stout cardinal piece, placed obliquely; basal piece elongated, subcylindrical, horny; it bears two lobes; the outside one, close by the palpus is coriaceous, elongated, beset with stiff bristles and ends in a blunt point, directed upwards (towards the labrum); the inner lobe (concealed inside of the mouth), is shorter and ends in a strong, horny, curved point; it has some bristles on the inside, near the base; maxillary palpi 4-jointed; joints short, subcylindrical; second joint a little longer than the third; last joint likewise longer, pointed; *mentum* quadrangular, somewhat narrowed at the base; palpigerous piece transverse, rounded on the sides, excised in the middle and beset with bristles; labial palpi 2-jointed; first joint short, stout, tuberculiform; second joint small, narrow, almost rudimentary.

*Thoracic segments* narrower than those of the remainder of the body; the first with a horny, almost square piece on each side of the back and with a few scattered hairs; *the feet* with a few scattered hairs: *coxæ* cylindrical, elongated, but little shorter than the remainder of the foot; *femora* and *tibiæ* almost soldered together, a vestige of a joint being perceptible only on the upper side; the first are subcylindrical, the latter incrassated at the base, attenuated at the tip, which is crowned with a few minute bristles, and two longer hairs, evidently representing rudiments of ungues.

*Abdomen* very convex, bag-like on its back, glabrous, with the exception of a few scattered hairs; dorsal segments with transverse folds in the middle; under the anal aperture there is a semicircular, coriaceous piece, densely covered with short bristles, except in the middle, which is smooth and shining; it probably aids the larva in its motions.

Each larva was found enclosed in a globular case of dung or earthy matter, about an inch and a quarter in diameter. Early in spring, I found these cases inbedded in the sand on the banks of the Potomac. The larvae underwent their transformation in confinement in the course of the summer, and although the pupæ died before the exclusion of the perfect insect, their form proved without any possible doubt that they were *Copris carolina*.

This larva shows a decided analogy with those of *Onthophagus* (Mulsant, *Lamellicornes*, p. 104, tab. I, fig. 5) and *Canthon volvens* (Candèze, *Hist. des Métam. de quelques larves exotiques*, tab. II, fig. 2), with the following differences: it is much stouter than both, especially than *Canthon*; it has no vestige of a hairy protuberance on the back, like *Onthophagus*; its labrum is less distinctly three-lobed.

**ZENOA PICEA** Beauv.

(Plate 1. Fig. 2.)

Larva resembling those of the *Elatерidæ* or *Tenebrionidæ* in general appearance; cylindrical, the head being almost of the same breadth as the body, substance hard, horny, more or less dark brown; length, a little more than an inch.

*Head* stout, rounded, almost subglobular, inserted in the first thoracic segment, so that the front and the occiput above and a part of the gula below, are not covered by this segment. Front and occiput are deeply punctate; the latter has a short, longitudinal furrow in the middle; gula submembranaceous. Oral opening wide; its upper border somewhat reflexed, incrassated; its lower border, enclosing the maxillæ and the under lip, is cut out square, but does not reach the border of the thorax.

*Labrum* transverse, horny, jagged anteriorly, very uneven on its surface, showing deep punctures, placed in a row posteriorly, a depression before them, and many wrinkles on their intervals.

*Antennæ* rudimentary, apparently retractile, as they seem to be represented by two short tubercles, ending in a bristle, and projecting from a pit visible on each side of the head, on the oral border.

*Ocelli* not apparent.

*Mandibles* small, horny, strong, subpyramidal, ending in three teeth, the intermediate being the largest; the furrows, forming the intervals of these teeth, run some distance down the outside of the mandible; there is an excavation between them. This pair of organs is concealed deeply within the oral opening and cannot be distinctly seen, unless the mouth is dissected.

*Maxillæ*: a rather large cardinal piece, connate with the mentum; a basal piece, which is more than twice broader than it is long; a small, almost horny, suboblong, lamelliform lobe, rounded at the tip and bristly on the inside, and a second, still smaller, inner lobe, inserted below the first and closely applied to it; it is also beset with bristles and is concealed from view by the labium; maxillary palpi short, conical, 4-jointed; the first joint, although the longest, is still broader than long; the other joints

short, transverse; the last pointed.

The *labium* consists firstly, of a triangular or heart-shaped mentum, enclosed between, and connate with the cardinal pieces of the maxillæ; a fine impressed line indicates their suture; secondly, of a short, transverse, palpi-gerous piece, bearing on each side a short, 2-jointed palpus, with a stout basal and small narrow terminal joint; thirdly, of a large horny piece, situated behind the latter one, and occupying the whole width between the lobes of the maxillæ. It is bisinuated anteriorly and as it projects above the palpi, the latter are very indistinct, and appear concealed in an excavation.

*First thoracic segment* but little longer than broad, deeply punctate, like the head; a transverse furrow, running near by, but somewhat obliquely to, the anterior border, separates anteriorly a narrow, densely striate band, which is broader on both sides than in the middle; a second transverse, but less definite furrow runs from the middle of the back, where it is almost obsolete, down both sides, reaching the first furrow on the underside of the body.

*Second and third thoracic segments* transverse, almost three times broader than long, deeply punctate, like the first. The stigma is placed on each side near the anterior margin of the mesothorax.

*Feet* inserted in a depression on the underside of the thorax; they are very short, approximated at their bases and consist, besides the coxa, of three short, stout joints, the last of which ends in a strong unguit.

*Abdominal segments*, eight in number, cylindrical, broader than long, perfectly annular, as there is no visible suture on the sides or below, separating the ventral from the dorsal segments. The dorsum is punctate, but more sparsely than the thorax; the venter is smooth, except at the posterior margins of the segments, which are finely striate. The eighth segment is punctate all round, and more densely than the others. The posterior part of this segment is obliquely truncate and is closed posteriorly by a round, flat, horny piece, punctate on the outside and which can, to a certain extent, be opened and closed like a lid, being connected by a hinge superiorly and an expanding membrane inferiorly. This lid is to be considered as the ninth segment of the abdomen.

The segments 2—7 of the abdomen, have each, on the dorsal side, near the anterior margin, a pair of deep pits, somewhat angular anteriorly.

The eighth segment has, on the same place as the pits of the previous segments, a pair of short, oblique grooves, running towards the anterior incisure and finely striated at the bottom. The presence of eight pairs of abdominal stigmata is indicated by small, round, smooth discs or depressions, with elevated margin, situated on both sides of the body, on the

same line with the thoracic stigma. Between each pit and the stigma of the same segment, a small excavation, finely striated at the bottom, is perceptible close by the incisure, the anterior portion of this excavation being covered by the posterior margin of the previous segment.

This larva was communicated to Dr. LeConte by Benj. D. Walsh Esq., in Rock Island, Ill., as being probably that of *Zenóa picea*. He had found it under bark, in Southern Illinois, together with the perfect insect.

Mr. Candèze in his recent pamphlet (*Hist. des métam. de qlq. larves exot.* 1861) describes a larva from Ceylon, which shows the closest resemblance to the above described one. But Mr. Candèze's larva was sent to him as that of an elaterideous insect, *Campso sternus Templetonii*.

Dr. John L. LeConte, to whom I communicated my doubts on this subject, informed me that a clerical error had probably been committed in regard to "*Campso sternus*" as there is a *Callirhipis Templetonii* from Ceylon, which genus is next to *Zenóa*. Thus there can be no other doubt, I think, about the family to which both larvæ belong.

The differences between these larvæ are immaterial. An ocellus on each side of the head was distinctly seen on the larva from Ceylon; I could not perceive any on mine; besides, the antennæ of my larva are shorter, but, as they seem to be retractile, this shortness may be only apparent.

But I differ from Mr. Candèze in the interpretation of the two rows of pits on the abdominal segments of the larva. He takes them for stigmata and says, in accordance with this supposition, that the larva has the abnormal number of *six* pairs of stigmata on the abdominal segments and *none* on the thorax. My larva shows, as stated above, the normal arrangement of these organs: a pair on the thorax and eight pairs on the abdomen.

These stigmata, although very small, are quite distinct and placed on each side below the row of dorsal pits. With a strong lens, a double slit may be seen at the bottom of each. Mr. Candèze mentions "small depressions with an elevated margin and smooth bottom" which he perceived on each side of the anterior abdominal segments, below the pits, and which were obliterated on the posterior segments. May they not be the true stigmata?

**PTILODACTYLA ELATERINA** Illig.

(Plate 1. Fig. 3.)

Larva 0.35—0.4 long, cylindrical above, venter flattened; head and thorax a little broader than the remaining segments; consistency horny on the dorsal segments, softer on the ventral ones; head and thorax horny, reddish-brown; dorsal segments yellowish-brown, venter paler; the body

is beset with numerous, although not dense, long, erect hairs, forming transverse rows on the dorsal side.

*Head* horizontal, rather short, rounded, somewhat stout, inserted in the prothorax, a transverse portion of the front, not much longer than the projecting parts of the mouth (including the epistoma), remaining uncovered; *antennæ* inserted on the sides of the head, a little shorter than the breadth of the labrum, 4-jointed, basal joint very short, transverse, more than twice broader than long, second joint subcylindrical, less than twice longer than broad, third joint cylindrical, about the same length with the third, but much narrower, obliquely truncated at the tip; the fourth joint is represented by two minute, short articles, closely applied to each other and inserted in the truncature of the third joint; a black spot on each side of the head, close behind the antennæ, may foreshadow the appearance of ocelli, which are not otherwise perceptible; front irregularly wrinkled, epistoma short, transverse, its posterior suture very distinct, straight in the middle, slightly oblique on both sides; *labrum* transverse, not longer and a little narrower than the epistoma, horny, its anterior margin nearly straight, slightly recurved in the middle, so as to form a distinctly elevated edge; its surface has two minute impressed points, with a hair inserted on each; *mandibles* horny, stout, slightly arcuated exteriorly and hollowed out on the inside; with three blunt teeth at the tip; unless removed, they are concealed inside of the mouth and do not project beyond the labrum; *maxillæ*: a short, oblique cardinal piece; a broad, coriaceous basal piece; two lobes of the same consistency; the inner one narrow, short-lanceolate, pointed at tip, with six or seven stout bristles on the inside; the other, inserted between the first and the palpus, and separated from the basal piece by a distinct suture, is also coriaceous, rounded at tip, on the inner side of which a palpiform, subcylindrical, stout joint, pointing inside, is inserted; three stout bristles are placed immediately behind it; maxillary palpi 4-jointed, conical, joints of about equal length, diminishing in breadth; *mentum* large, flat, disclike, broader than long, rounded on the sides, partly concealing the basis of the maxillæ; palpigerous piece horny, broad, with a bisinuated projection in the middle, between the palpi, which are 2-jointed, short.

*Prothorax* as long as it is broad, with numerous transverse wrinkles on its anterior half, more smooth posteriorly; laterally it is bent on both sides towards the pectus, so as to be convex above and concave below; its lateral edges are sharp and project over the basis of the coxæ; its anterior and posterior margins above are straight; the lateral ones slightly rounded; the angles are also rounded; its anterior portion below is a triangular skin,

covering the basis of the head. *The second and third segments of the thorax* as well as eight segments of the *abdomen* are nearly of the same length, short, transverse, smooth, except some indistinct punctures in which the hairs are inserted, especially a row of them near the posterior margin.

These segments are bent on both sides towards the venter, so that the sutures between them and the latter are on the underside of the body.

*Ninth or last segment* of the abdomen convex above, rounded posteriorly, projecting beyond its ventral side, which has a large, fleshy tubercle (pseudopod), with a fissure in the middle.

A longitudinal impressed line is visible on the posterior part of the prothorax and on the three following segments.

*The feet* have the usual structure: a large oblique coxa, a distinct, sublanceolate trochanter, a stout, short femur, a narrower tibia ending in a horny unguis; the inside of the femora is lined with a few short bristles.

The stigmata are perhaps concealed within one of the ventral furrows, as notwithstanding my repeated efforts I did not succeed in finding them.

*The pupa* has two bristles, inserted at some distance from each other, near the anterior margin of the prothorax; two similar bristles close before the root of the wings; the abdomen is conical, beset with fine hairs on the margins of the segments; its tip is bifid.

Dr. George H. Horn who kindly communicated to me this larva, makes the following statement about its discovery (Proc. Ent. Soc. Phila. 1861, p. 29), "One specimen of the perfect insect and many pupæ, together with one larva, were taken by myself. They were all found in one log, which was rather moist and rotten, its texture being so destroyed that it was impossible to distinguish the species, though it was probably an oak. The pupæ were concealed by a thin layer of wood, and were on the side adjacent the earth. The identity of the pupæ was established by raising several, and by means of the cast larva skin, which adhered to a pupa, I was enabled to identify the larva."

Although this insect is placed in the same family with *Cyphon*, it is difficult to discover any points of resemblance between the larvæ of both.

The general appearance, the mode of life and the details of the structure are totally different. The long antennæ and maxillary palpi, the large labrum, excised anteriorly, the depressed, onisciform appearance of the larva of *Cyphon* (and *Prionocyphon*), are replaced here by short antennæ and palpi, a short, transverse labrum, almost entire anteriorly, and a cylindrical body, reminding in form and consistence of the larvæ of *Elateridæ*. The mentum is rather broad in both genera; still it is much larger in *Cyphon*, where it occupies the greater part of the underside of

the head; its labial palpi are remarkably distant from each other, whereas they are approximated in the larva of *Ptilodactyla*. It may be that the larva of *Atopa*, if better known, would show more relationship to the latter; but the details given in the only description (without figure) which is extant (Erichs. Wieg. Arch. 1841, p. 88 and Chap. & Candèze, l. c. p. 492) seem rather to justify an opposite conclusion. Antennæ, epistoma, labrum, mandibles, maxillæ etc., of the larva of *Atopa* seem to be different. Its head is perpendicular, as in the Lamellicorn larvæ, and not horizontal.

It would be difficult at present to point out any other relationship of the larva of *Ptilodactyla*; that to the *Elateridæ* is merely confined to some analogy in the general appearance; the differences are very considerable.

#### **FORNAX BADIUS** Mels.

(Plate 1. Fig. 4.)

The first larva of *Fornax* was described and figured by Mr. Coquerel in the *Annales de la Soc. Entom.* Vol. IV, 3<sup>e</sup> Série, 1856. It came from Madagascar. The larva of the American species, kindly communicated to me by Dr. Horn in Philadelphia, agrees with that of Mr. Coquerel in all the principal characters, especially the singular structure of the head.

The larva of *F. badius* is 0.83 long, linear, flat, slightly coarctate at the incisures; its consistence is tough, its color (except the head and some horny spots on the body), yellowish; it has no feet. Examined under a strong lens, the skin of the larva appears finely striate.

*The head* is semi-elliptical, flat, horny, dark brown in the middle, reddish-brown on the sides; its sharp margins are serrated as follows: in the middle, anteriorly, there is a small excision with two minute projections, or teeth, on each side; behind them, six larger teeth may be counted on each side, the last of which is the largest and is preceded by a deeper excision. The interpretation of these teeth, as parts of the mouth, is not without difficulty. The two pairs of minute projections on the anterior part of the head, if viewed from below, appear separated from the lower cephalic plate by a stout, bisinuated suture and may, perhaps, be taken for the underlip. In the interval between the first and second lateral teeth a very minute, 2-jointed, palpiform organ, with a similar, 1-jointed organ close by it, on the inner side, are perceptible. They project from a perforation in the horny substance of the head and seem to be retractile, as they are not visible in some specimens. I incline to take the one for the maxillary palpus and the other for the inner lobe of the maxilla. The lateral teeth 2—4, seen from below, appear separated by a suture. This

piece may be the mandible. Finally the last and largest lateral tooth I would consider as the lateral angle of the cephalic shell and the place where the antenna, of which not a rudiment however is perceptible here, is generally inserted. (Mr. Coquerel considers this last tooth as the mandible.) Thus, the mandibles seem to be closely connate with the cephalic shell and not susceptible of any independent motion. The oral opening is only a small transverse slit on the anterior sharp edge of the head. Except the above mentioned sutures on the underside, the surface of the head is perfectly smooth and shining, above and below. No ocelli are discernible.

*The two first thoracic segments* are longer, broader, and somewhat stouter than the abdominal ones; the first is a little narrowed anteriorly, the second almost square; the third segment is transverse, but little broader than the abdominal ones, and exactly like them in shape. The first segment of the thorax has, on each side, laterally, a brown, horny, polished spot; it has, besides, in the middle of the dorsal, as well as of the ventral side, two similar spots, having the shape of an inverted comma, and deeply striated on their broader end; they are placed longitudinally, parallel to each other; the space between them is occupied by a square, opaque spot of a velvety appearance.

The *second* thoracic segment has, on its dorsal side, two pale brown, horny, elongated, closely approximated, deeply striated spots, enclosed in a horse-shoe-shaped, opaque, velvety band; the ventral side of the segment has exactly the same structure, only the two striated spots coalesce here in one. The thoracic stigmata, placed on the sides of this segment, are very distinct.

*The abdominal segments* are nine in number; the three first are transverse, broader than they are long; the following are somewhat longer, so that the sixth, seventh and eighth are almost square; each of the segments, except the ninth, has a pair of distinct stigmata placed on the sides, close under the margin of the preceding segment. The four anterior ones have, near the anterior margin, a narrow, opaque, velvety band and behind this band, a small, horny, transverse streak of undefined outline, covered with fine longitudinal striæ. The four following segments have, instead of the velvety band, a larger, triangular or semicircular spot of the same nature.

The ventral side shows exactly the same structure. All the velvety spots show in a certain light, a golden, sericeous reflection.

The ninth or last segment of the abdomen is a little broader, although not longer, than the preceding ones, rounded at the tip; its basal portion is of the same color and consistence with the other segments; its tip is



brown, horny and punctate. On the dorsal side, at the basis, this segment has a semicircular, velvety spot, like the preceding segments. On the ventral side it has a semicircular excavation with a finely denticulated anterior (arcuated) margin, a finely granulated bottom, and a posterior (straight) margin, indicated by a row of short, rude, longitudinal furrows. A short longitudinal groove may be seen, besides, among the granules of the bottom; it is evidently the anus.

There is no distinct suture between the dorsal and ventral segments, neither on the thorax, nor on the abdomen.

This larva resembles in every respect that described by Mr. Coquerel, except that he counted eight abdominal segments, instead of the normal number of nine, which admits of no doubt in my specimens. A slight difference is also observable in the shape of the horny, striated spots of the first thoracic segment; in the larva from Madagascar, their anterior end is broader than the posterior one. Mr. Coquerel differs besides from me in the interpretation of certain parts of the head; he does not mention the minute palpiform projections and considers as mandibles, what I take to be the lateral corners of the cephalic shell, which, in normally organized larvæ, are the places of insertion of the antennæ. My supposition is strengthened by the comparison of the larva of *Melasis*, where the antennæ are developed.

The pupa of *F. badius* is 0.35 long, elongated, pale yellowish, with sparse hairs and bristles on the head and hairy tufts at the tip of the body. (See Coquerel's figure, l. c. Tab. XV, fig. 3 K.)

The flat, sharp-edged, denticulated head of the larva of *Fornax* with its connate parts of the mouth, apparently capable only of almost imperceptible motions, and the small oral opening, render it very probable, in my opinion, that these larvæ pierce the skin of other wood-boring larvæ and suck the contents of their body. In this respect they would only resemble their congeners, the Elaterideous larvæ, some of which are known to be predaceous.

Dr. Horn found numerous larvæ and pupæ in June, in the stumps of oak trees undergoing a state of dry decay. When about to assume the pupa state, the larva becomes doubled upon itself, U-shaped. The pupa state lasts two weeks. (See Proc. Entom. Soc. Phila. 1861, p. 43.)

#### **FORNAX ORCHESIDES Newm. (?)**

(Plate 1. Fig. 5.)

Since I obtained from Dr. Horn the previous larva, I easily recognized as a *Fornax* an undetermined larva of my collection, which I had found

several years ago near Berkeley Springs in Virginia. As it is about an inch and a fifth long, it must be that of the largest species of the genus, *Fornax orchেসides* (or, perhaps *F. bicolor*?).

It agrees with the larva of *F. badius* in all important characters, so that it will be sufficient here to point out the differences.

*The head* is somewhat broader anteriorly and the lateral pieces (mandibles?) are three and not four-toothed as in the other larvæ. The surface of the head above is sparsely punctate. The palpiform projections, although minute, are discernible.

*The first thoracic segment* is twice broader than long, narrowed anteriorly, rounded on the sides; its substance is almost horny, reddish-brown; the surface is punctate, with a longitudinal groove on each side, two triangular, darker spots in the middle, especially apparent on the ventral side, and a triangular, sericeous spot between them, near the posterior margin; this spot is broader on the ventral than on the dorsal side.

*The two following thoracic and the abdominal segments*, except the last, are covered, above and below, with dense longitudinal striæ. Near the anterior margin of each, in the middle, there is a sericeous spot, which is round on all segments, on the dorsal as well as on the ventral side, except on the second thoracic segment above, where it is tridentate, and on the second and third thoracic segments below, where it is reversed truncated heart-shaped.

*The last abdominal segment* is of a more horny consistence, deeply punctate, hollowed out below. In the middle of the underside there are the same granulations as in the former larva, arranged in concentric rows, round a furrow in the middle. The basis of the same side has deep longitudinal furrows. The truncated posterior margin of the segment shows two minute, oblique, horny points.

As to the proportions of the segments, the thoracic ones are broader than long, the abdominal ones almost square, except two or three intermediate ones, which are a little longer than broad and somewhat narrowed at both ends; the last segment is longer than broad, suboval.

#### PRIONOCYPHON DISCOIDEUS Say.

Larva onisciform, elongated, flattened, with sharp lateral edges, slightly attenuated anteriorly and posteriorly; its consistence is coriaceous; its color a dull pale yellowish; its length 0.4.

*Head* rather large, about half so broad as the first thoracic segment; anterior margin of the upper cephalic plate almost straight, dividing the head transversely in two almost equal parts, the posterior of which com-

prises the broad, but short, front, with a group of black ocelli on each side; the anterior one showing the upper surface of the parts of the mouth.

*Antennæ*, inserted immediately before the ocelli, almost half so long as the body, setaceous; they have two cylindrical basal joints, the second longer than the first; the remainder of the antenna is very slender, gradually attenuated towards the tip and consisting of numerous short joints, of which more than 150 can be counted.

No distinct epistoma; *labrum* occupying only one third of the breadth of the head, nearly as broad as it is long, narrowed posteriorly, rounded on the sides, and with a broad excision anteriorly; it bears several bristles.

*Mandibles* stout at the base, attenuated towards the tip, which is pointed; arcuated on the outside and slightly excavated on the inside; their direction being nearly parallel to the longitudinal axis of the body, they do not cross nor touch each other; their color is pale, brown only at tip.

*Maxillæ* elongated, fleshy, ending in a coriaceous, yellowish-brown lobe, ciliated on the margin; an oblique brown suture runs from that lobe down a part of the maxilla, thus separating a narrow piece on which the palpus is inserted; the latter placed on a cylindrical basal tubercle, resembling a fifth joint, elongated, almost longer than the maxilla, 4-jointed; joints cylindrical, slender; the first is the longest; the second and third of equal length, shorter than the first; the fourth still shorter and more slender.

*Underlip* very large, covering a considerable portion of the underside of the head. It consists firstly of a trapezoidal basal piece, immediately adjoining the anterior margin of the thorax; secondly of a large, rounded, cushion-like piece, on the anterior sides of which the palpi are inserted; the latter are 2-jointed and unusually distant from each other; thirdly of a lingua, slightly projecting from behind the latter piece and ending in three stout bristles.

*First thoracic segment* elliptical, convex and smooth above, twice broader than long, its sides rounded, lined with a few bristles; its anterior angles hardly indicated. *Second and third segments* transverse, shorter than the first, but of the same breadth; smooth above, somewhat rounded and ciliated on the sides. These three dorsal segments project considerably beyond the ventral ones.

*The feet* are rather long; coxæ large, placed obliquely inwards, those of each pair touching each other at the tips; femora and tibiæ cylindrical, clothed with short bristles; unguis slender, elongated, spinose about the middle.

*Abdomen* with eight dorsal and nine ventral segments; smooth and convex above and below; lateral edges sharp, clothed with soft hairs; segments

short, nearly of the same length; their breadth is that of the last thoracic segment; the posterior ones however, are somewhat attenuated; the last dorsal segment is trapezoidal, longer than the preceding; its posterior margin is sinuated.

An almost imperceptible longitudinal impressed line runs along the middle of the dorsal side of the body, on the thoracic and abdominal segments.

This larva shares all the striking characters of the larvæ of *Cyphon*, as characterized by Erichson (see Chapuis & Candèze, Catalogue des larves etc. p. 493, tab. V, fig. 5); the long antennæ, the rounded labrum, excised anteriorly, the long maxillary palpi, the large labium, with the labial palpi very distant from each other etc., are common to both. If my description of the lingua and the maxillæ is less detailed than that of this author, it is merely because, having only a single specimen for examination, I did not like to dissect it. No more than Erichson did I perceive any vestiges of stigmata.

The differences which I observe consist in the form of the head, which, in my specimen, is less expanded behind the antennæ and in the more considerable length of the latter.

To the discoverer of the larva, Benj. D. Walsh Esq., in Rock Island, Ill., I am indebted for the following notice about its habits:—

“The larvæ of *Prionocyphon discoideus* Say, occurred abundantly of various sizes about the end of May in the hollow of an oak stump containing a gallon or two of water. Some were in the decayed wood which formed the walls of the hollow, but most of them were attached to pieces of loose wood and bark which lay at the bottom of the water. The pupæ appeared to be found only in the walls of the hollow.

“On the 7th of June, having given a fresh supply of the coffee-colored water from the stump to a number of these larvæ, which I had placed in a glass jar, I noticed them beneath the surface of the water vibrating vigorously up and down a pencil of hairs proceeding from a horizontal slit in the tail. This pencil appeared to be about the length of four abdominal segments; and on a subsequent occasion, one of the larvæ having suspended operations for a second or two, I was able to see, with the assistance of a double lens magnifying about four diameters, that the pencil was composed of three pair of filaments, each beautifully bipectinate. I presume it is used to extract air from the water.

“When at the surface this larva generally, but not always, swims on its back, keeping its body slightly below the surface and striking with its feet, so as to jerk from point to point in a curved line. The pencil of

"hairs touches the surface all the time, being apparently not over one or one and a half millimetres in length, and obscurely developed when compared with the view obtained on June 7th under the surface of the water.

"Occasionally a bubble of air is discharged from the tail. Generally, when it is beneath the surface, the anal pencil is retracted entirely. It has the power of jerking its body suddenly round, and darting up and down with great vigor. Its remarkably long antennæ are constantly vibrating, like those of terrestrial insects. Its general habit is to crawl on decayed wood beneath the surface, occasionally swimming to the surface, probably for a fresh supply of air.

"The pupa is white, with large black eyes which are very conspicuous beneath, and two short black setæ on the occiput. The body is covered with a short, white, erect down or pubescence. The antennæ are about two-thirds the length of the body, placed lengthways beneath, side by side. The body is scarcely .2 inch. long.

"The imago occurred at the same time as the larva, in profusion, in the rotten walls of the hollow. I found none in my breeding jar after June 7th. From about June 14th to July 21st I was absent from home. On August 7th I examined the jar, and found eight or ten larvæ in it, but no pupæ or imagos.

"The stump whence they were obtained, supplied many additional larvæ, but none have since developed into the imago state. Hence I conclude that this insect is not double-brooded."

#### **PARANDRA BRUNNEA** Fabr.

(Plate 1. Fig. 6.)

The longicorn larvæ are remarkable for the great uniformity of their general appearance and structure and although a considerable number of them have been described, the characters distinguishing the larvæ of the different groups of this family have not, as yet, been sufficiently defined.

All that we know about these characters is contained in the following passage of Erichson (Wieg. Archiv. 1842, p. 376): "Notwithstanding the great similitude between the larvæ of Longicorns, some important differences in the structure of those belonging to the four divisions of this family may be noticed. The larvæ of the *Lamiidæ* differ more than the others, on account of the total absence of feet and the position of the first pair of stigmata which is placed in the fold between pro- and mesothoracic segments, less abruptly separated than the others. The other larvæ have this first pair on the sides of the mesothorax, and have

“feet, which however are sometimes so small, as to be perceptible only when magnified, even in large sized larvæ. The *Cerambycidæ*, (*Cerambyx*, *Callidium*,) have on the posterior side of the prothorax, above and below, a fleshy, transverse fold, separated by a furrow from the horny disc of this segment; in the *Prionidæ* and *Lepturidæ*, the same fold is visible only on the underside, The *Lepturæ* have a large, flattened head, as broad as the prothorax, whereas in the other longicorn larvæ the head is small and much narrower than the thorax. The larvæ of *Prionidæ* show the least differences from those of the *Lepturidæ*, and that of *Spondylis* is remarkably allied to the latter.”

These characters, if used for the determination of larvæ will be found useful, but not in all cases exhaustive. The position of the mesothoracic stigmata, for instance, is frequently such that it is difficult to decide whether they belong to the mesothorax itself, or to the fold between it and the prothorax. The absence of feet seems to be a good character of the *Lamiidæ*; that exceptions occur, however, is proved by the larvæ of *Arhopalus*, which has no feet, although belonging to the *Cerambycidæ*.

A striking instance of the uniformity of structure which prevails among the longicorn larvæ is afforded by that of *Parandra*. This genus is located on the extreme limit of the family; the appearance of the perfect insect is so different from that of the other longicorns that one might be tempted to suspect, that its location among them was unnatural. Nevertheless, its larva is a true longicorn larva, and could not possibly be mistaken for anything else. The general appearance, the structure of the head and mouth, the large development of the prothorax, with its horny disc above and below, the fleshy protuberances along the back and the venter, the Y-shaped anal opening, etc., this larva has in common with all the others of the family. The size of the head, the presence of feet, the fleshy fold on the posterior ventral margin of the prothorax, the position of the first pair of stigmata, and the development of the ninth abdominal segment, the anal portion of which, usually separated by a fold in longicorn larvæ, is very small here, are so many indications of its relationship to the *Prionidæ*.

Length about an inch.

*Head* large, not much narrower than the prothorax, inserted in it for more than one half of its length; when extracted its appears heart-shaped; a longitudinal suture runs in the middle, above and below; the excision between the posterior rounded lobes is filled up with a fleshy substance forming the connection of the head with the prothorax. Its color is yellowish, except the margins of the oral opening, which are brownish.

*Epistoma* trapezoidal; its anterior angles rounded. *Labrum* longer than broad, narrowed at the base, broadest before the middle and again narrowed towards the tip, which is truncated and beset with golden pubescence. *Mandibles* very stout at the base, pointed at tip, almost pyramidal; they have no indentations; they are but little excavated on the inside and their tip is but very slightly curved. *Maxillæ*: stout cardinal piece, short, transverse basal piece, a small, coriaceous, bristly lobe, and a 3-jointed palpus, projecting beyond this lobe. *Mentum* transverse, rounded on the sides; palpigerous piece small, bilobed, each lobe bearing a short, 2-jointed palpus; *lingua* very much developed, prolonged inside of the mouth and consisting of two coriaceous lobes, pubescent along the margins and connate on their flat surfaces, the margins only remaining free (this can be perceived only by dissection). *Antennæ* short, apparently 4-jointed; first joint the largest, second joint as if immersed or retractile in the first, third but little longer, fourth minute and narrow.

*Prothorax* yellowish, brown on the anterior margin; its underside shows three triangular pieces separated by distinct sutures; at the posterior corners of the middle one the feet are inserted on a pair of fleshy tubercles; each side of the prothorax has also a triangular, elongated piece, placed between the ventral and the dorsal horny plate; the latter is flat on the back and recurved almost at right angles on the sides, so as to encroach considerably on the lateral sides of the prothorax; its dorsal disc is limited on both sides by a longitudinal fold, tinged with brown, beginning at the posterior margin, but not quite reaching the anterior one; the anterior portion of this dorsal disc is smooth, the posterior one covered with fine, brown, granulations more extended anteriorly in the middle than on the sides; the posterior margin of this disc is abrupt, steep and smooth. The middle triangle of the breast-plate has the same granulations on its posterior half; they are also extended to a portion of the lateral triangles.

The *two other thoracic segments* are short, wrinkled; on the underside, between the feet of each pair, two oblique wrinkles, connected by a transverse furrow, may be observed. The feet are short and consist of a fleshy, tubercular coxa, a short femur and tibia and an elongated nail. The first pair of stigmata is placed on the sides of the mesothorax.

The seven first *abdominal segments* have each, on the dorsal, as well as the ventral side a fleshy protuberance, which is oblong on two or three anterior segments and more rounded on the others; being divided longitudinally by a deep furrow, these protuberances appear double; they have besides, especially those on the anterior segments, a more or less distinct transverse furrow and a pair of oblique wrinkles on the sides. The eighth

and ninth segments are smooth above and below. The anterior segments are the shortest; the following gradually increase in length; the ninth is the longest; its anal tubercle is small, divided into three lobes by a Y-shaped furrow; a few hairs are inserted around it. Number and position of the abdominal stigmata are normal.

Dr. Horn, to whom I am indebted for the communication of these larvæ, found them in different kinds of decaying wood, especially beech wood, which they seem to prefer. (See Proc. Entom. Soc. Phila. I, p. 73.)

**ARHOPALUS PICTUS** Drury. (*robinisæ* Först.)

(Plate 1. Fig. 7.)

Larva 0.6–0.7 long, somewhat flattened-club-shaped, the thoracic segments being considerably broader than the abdominal ones, but at the same time distinctly flattened above and below.

*Head*, when extracted from the thorax, appears almost circular and narrower than the prothorax; in its usual position, it is inserted in the latter, so that, besides the mouth, a very narrow portion only is visible. The exerted portion is brownish, the remainder yellow. *Antennæ* short, apparently retractile, as in some specimens only two joints are discernible, whereas in others four joints could be seen; the second joint seems to be retractile in the first; the fourth is rudimentary. The visible portion of the head above is irregularly wrinkled and marked with some punctures; below it has two short, parallel, longitudinal striæ on the gula. *Epistoma* distinct, small, trapezoidal; *labrum* suboval, almost as long as broad, narrowed at the base, broadest in the middle, narrowed again and ciliated at the tip. *Mandibles* very strong, horny, black, rounded at the tip, regularly convex on the outside; inside somewhat excavated and applying exactly with the broad, rounded tip, against the inside of the opposite mandible. *The maxillæ* and *the underlip* have the usual structure of these parts in longicorn larvæ, only the basal pieces are shorter than in the larva of *Parandra* and the *lingua* seems to be less developed.

*The prothorax* is twice broader than long, rounded anteriorly, flattened above and below, brownish-yellow, covered, especially on the sides and below, with a short, golden pubescence. The sutures of its component parts are by far not so distinct as in the preceding species. A deep, longitudinal, sinuated furrow is visible on each side; a short transverse furrow crosses its posterior end. The upper disc is enclosed between two furrows beginning at the posterior margin and not reaching the anterior one; a transverse furrow, parallel to the posterior margin separates a narrow fleshy fold. The anterior portion of this upper disc is irregularly punctured



and wrinkled, although shining; in some specimens it has an indistinct, elongated, somewhat oblique brownish spot on each side, about the middle; the posterior portion of the disc is opaque, covered with dense longitudinal wrinkles, among which a straight impressed line is apparent in the middle. The ventral side is irregularly punctured on the sides and has a depression in the middle which is less apparent in some specimens.

The *two other thoracic*, as well as the two first *abdominal segments*, have, above and below, a transverse, flattened opaque disc, limited on each side by a furrow, and showing some indistinct furrows on its surface; the other abdominal segments have the usual protuberances, on the dorsal as well as the ventral side, marked with wrinkles. The last segment is short and divided in two halves by a transverse fold; the latter half has the anal opening at the tip. All these segments are beset with short golden hairs on the sides. The distribution of the stigmata is normal.

The presence of a narrow, fleshy, fold on the posterior margin of the prothorax, above and below, is a character of the *Cerambyridæ*; but the absence of feet belongs to the larvæ of the *Lamiidæ*.

The larva usually occurs in the wood of the locust. Dr. Horn found it in the hickory. According to him "its excavations are immediately sub-cortical; unlike the *Clytus*, its course is not in a line, but it bores in "every direction, making extensive excavations." (See Proc. Entom. Soc. Phila. I, p. 30.)

The pupa has numerous, pointed granulations on the prothorax; similar granulations ending in sharp points, are placed in a row on the dorsal segments of the abdomen, near the posterior margin; the same segments have, more anteriorly, a few similar sharp, horny projections. On the penultimate segments, these projections are larger and recurved anteriorly at the tip; there are six in a row near the posterior margin, and two others more anteriorly. The last segment has four similar projections in a row.

#### **PSENO CERUS SUPERNOTATUS** Say.

Larva about 0.3 long, subcylindrical or prismatical, pro- and mesothorax being a little broader than the other segments.

*Head* about half the breadth of the prothorax, reddish-yellow, brown along the oral margin, more reddish below. *Antennæ* very short (in my specimens, preserved in too strong alcohol, they seem to have contracted and are hardly visible). *Epistoma* trapezoidal. *Labrum* transverse, short, rounded anteriorly and ciliated with short hairs. *Mandibles* subconical, apparently not touching each other at their tips; the *maxillæ* and the *labium* seem to share the characters of the preceding larvæ.

The upper disc of the *prothorax*, limited on both sides by the usual two furrows, beginning at the posterior margin and not quite reaching the anterior one, is covered, on its anterior portion, by dense, parallel, longitudinal striæ; this portion (equal to about one-third of the length of the prothorax), is somewhat more convex than the remainder; the remaining two-thirds are more smooth and shining, irregularly and faintly wrinkled; close by the posterior margin, these wrinkles become more dense and also assume the shape of longitudinal, parallel striæ, which however are less deep than those of the anterior margin. The underside of the prothorax shows a triangular central disc, separated by more or less distinct furrows, and two triangular lateral discs (see *Parandra*). A transverse furrow near the posterior margin of the central triangle separates a fleshy transverse fold, which, in this genus is very large and distinct. The corresponding fold on the dorsal side is very narrow and much less distinct. The mesothoracic stigma is placed in the fold between pro- and mesothorax.

The two other *thoracic* and the *abdominal segments* are nearly of the same size and shape; only the former are a little broader. On the dorsal side, each of them, beginning with the last thoracic and ending with the seventh abdominal segment, has an oblong, transverse protuberance in the middle, marked on its surface with two transverse rows of small shining tubercles, especially apparent on the fifth, sixth and seventh segment; eight or ten tubercles may be counted in each row. The rows are convergent at both ends. Similar protuberances exist also on the ventral side; only, instead of eight, they are nine in number, as the mesothorax, which is smooth above, has a protuberance of this kind on the underside. The eighth and ninth abdominal segments are smooth; the anal portion of the ninth is distinctly separated.

The whole body is sparsely beset with fine golden hairs.

The absence of feet and the position of the thoracic stigmata indicate the position of this larva among the *Lamiidæ* of Erichson. I found them in winter, burrowing the stalk of a climbing plant, which may have been the grape vine, although I failed at that time to ascertain it positively. The perfect insect was reared from them the next spring.

#### CENTRONOPUS ANTHRACINUS Knoch.

Larva 0.8 long, cylindrical, yellowish-white, of a soft, fleshy consistence, naked, except a few sparse hairs on the head and still fewer on the body.

*Head* horizontal, yellowish (except the tip of the mandibles, which is brown), as broad as the prothorax, rounded, smooth and convex above.

flat below, sparsely beset with a few hairs on the sides and below; *epistoma* transverse, trapezoidal, pale anteriorly, separated from the front by a recitilinear suture; *labrum* transverse, as broad as the anterior, narrower portion of the epistoma, rounded at the anterior angles and beset with small hairs; *mandibles* horny, stout at the base, abruptly narrowed towards the tip and slightly curved interiorly; tip tridentate, the intermediate tooth being the largest; *maxillæ*: cardinal piece oblong, fleshy, obliquely directed inwards and closely applied to the basis of the mentum; basal piece elongated, subcylindrical, fleshy, forming a knee with the cardinal piece; maxillary lobe oblong, coriaceous, as long as the palpus, densely beset with hairs and spines on the inside and at the tip; maxillary palpi 3-jointed; first joint not longer than broad, second a little longer, subcylindrical, third as long as the first, but much narrower, attenuated at tip; *mentum* longer than broad, somewhat expanded about the middle; palpigerous piece transverse, short, bisinuated anteriorly; its lateral portions might be taken for the basal joint of the palpi, on account of their small size and rounded shape; the middle portion projects anteriorly between the palpi; its anterior, oval margin has several minute bristles; palpi 2-jointed; first subcylindrical, not much longer than broad; second joint shorter and narrower; *gula* marked with three longitudinal furrows, running towards a triangular piece which fills up a space between the basis of the maxillæ and mentum; *antennæ* a little shorter than the mandibles, 4-jointed; basal joint short, tuberculiform, second and third joints cylindrical, elongate, the latter shorter than the first; fourth joint very minute, much narrower than the third, still longer than broad, bearing an elongate hair at the tip; ocelli apparently none.

*Thoracic segments* smooth, of a somewhat harder consistence than the abdominal ones; the first is twice as long as each of the two others, convex above, with sharp edged lateral margins. Feet of moderate length; coxæ directed obliquely inwards, each of them touching at the tip the opposite one of the same pair; trochanters elongate, lanceolate at the tip; femora not much longer than the trochanter, subcylindrical, beset with a few bristles on the inside; tibiae a little longer, somewhat attenuated towards the tip; unguis stout and pale at the base, brown at tip.

*The nine abdominal segments* are of about equal length, fleshy, soft; the last segment ends in two short, unguiform, horny projections, directed upwards, which are pale at the base and brown at tip.

The *pupa* is yellowish-white; the sides of its abdominal segments are recurved upwards in the shape of two strong teeth, one of which points towards the head, the other towards the anus; inside of each of these

teeth is a smaller, tooth-like projection; at the tip of the abdomen there are two divergent spines.

Both larva and pupa of this insect are in perfect accordance with those of other *Tenebrionidæ*, and especially of the genus *Tenebrio*, except that the skin of the larva is of a softer substance than is generally the case in this family. Hardly any difference will be found, for instance, between my description of the parts of the mouth and that which Erichson gives of the larva of *Tenebrio molitor* (Chapuis & Candèze, l. c. p. 514). It remains, therefore to find out the generic differences of the larvæ by a close comparison of specimens, and not merely of descriptions.

Dr. Horn, who discovered this larva and communicated it to me, states (Proc. Ent. Soc. Phila. I, p. 30) that it inhabits black-oak stumps, and may be found in company with the larva of *C. calcaratus*.

#### **EPILACHNA BOREALIS Muls.**

Several larvæ of this genus having been described before, (see Chapuis & Candèze, l. c. p. 635, tab. IX, fig. 10, and Candèze, Histoire des mêtan. de qlq. larves exotiques, tab. VI, fig. 8) and mine agreeing with them in all essential characters, it is not necessary to give here a detailed description. I will only mention that the antennæ are somewhat longer than those figured by Candèze (l. c. fig. 10) and that the fourth ocellus is extremely minute, so that there are, in fact only three distinct ocelli.

The larva is very common on the leaves of the pumpkin. It is yellow with long, brown, branched spines, arranged in rows of six on each segment, except the first thoracic segment, which has only four. The pupa, instead of spines, has short bristles, especially on the thorax.

#### **UNKNOWN LARVÆ,**

related to either of the groups of *Lampyridæ*, *Telephoridæ* and *Elateridæ*.

(Plate 1. Fig. 8.)

Among the larvæ now before me for description, there are several unknown ones, belonging apparently to three distinct species of the same genus. One of the species, of which I have three specimens, comes from Louisiana and New Mexico. The second one (communicated to me by Dr. LeConte) is from Arizona. Both are from 2½ to 3 inches long. The third species is represented by a single specimen, about an inch long, found by Dr. Horn in Pennsylvania.

The following is the description of the first of these species:—

Larva 2½ inches long (one of the specimens, measuring only 1½ inch is perhaps not full grown), linear, slightly attenuated at both ends, convex

on the back, flattened on the ventral side; glabrous, smooth and shining; consistence horny; color of the dorsal segments (thoracic and abdominal), except a narrow border on the posterior margin which is paler, dark brown. almost black, with two large, rounded, ferruginous-red spots on each; in two of my specimens (both from *Prairie mer rouge*), these spots, occupying the sides of the dorsal segments, leave a broad brown band between them; in the third specimen they are much larger, and although the brown space still exists on the thoracic segments, it becomes almost obsolete on the abdominal ones, where the two spots gradually coalesce towards the end of the body, so that the sixth and seventh abdominal segments may be described as being ferruginous above with a brown margin, running all round; on the ninth and last segment, the brown stripe is again more apparent, although the remainder of the segment, except the two anterior corners, is ferruginous. The anterior corners of the first thoracic segment are yellowish.

*Head* horizontal, inserted in the first thoracic segment as far as the basis of the antennæ, flat, irregularly rugose above, dark brown, except the softer parts of the mouth and tubercles bearing the antennæ, all of which are paler.

*Antennæ* a little shorter than the mandibles, inserted on a fleshy tubercle just behind the root of the latter, 3-jointed; first joint subcylindrical; second joint a little longer than the first, somewhat thickened towards the tip; third joint at least twice narrower than the tip of the second, not much longer than broad, ending in an obtuse point; its tip seems to be separated from it by an articulation, thus representing perhaps a rudimentary fourth segment; the two first segments are brown, their tip brownish-yellow; the tubercle, on which the antenna is inserted, as well as the third joint are brownish-yellow.

*Ocelli* one on each side, behind the basis of the antennæ.

The upper horny disc of the *head* is limited anteriorly, in the middle of the space between the roots of the mandibles, by a bisinuated margin, in the shape of a flat W, from each of the two sinuses of which protrudes a small, fleshy tubercle; just before the tubercles, and closely applied to both, is a similar fleshy, but paler and more transverse piece. Although the epistoma is not separated by a distinct suture, I am inclined to take either these three fleshy pieces, or the two first alone, for the labrum; in the latter case the third transverse piece would be merely a protruding soft inner part of the mouth.

*Mandibles* free (not covered by other parts of the mouth), falciform, elongated, narrow, slightly and uniformly curved, pointed at tip, perfectly

smooth (without any teeth or projections) on their whole length; with a longitudinal groove, running from the basis to the tip on their upper side; their roots far distant from each other, being inserted on the sides of the head; when in repose, these organs overlap each other on a considerable portion of their length, the left one being the uppermost in my specimens.

*Maxillæ*: no distinct cardinal piece; basal piece elongated, closely applied to the mentum and soldered to it on its lower portion; besides the palpus, each of them bears two palpiform appendages; one is close by the palpus, inside of it, and is better seen from above than from below the head; it does not reach beyond the tip of the first joint of the palpus and is apparently 2-jointed, the first joint being short and annuliform, the second cylindrical, stout, obtuse; at its tip there is a very minute tubercle, as if a rudimentary joint, on the inside, and a long bristle on the outside; the second appendage is inserted much deeper, inside of the maxilla; it is closely applied to the mentum and can be perceived only, when this organ is slightly removed from its usual position; it is very small, cylindrical and more slender than the first appendage, and consists of a single joint, inserted on a tubercle.

*The palpi* are rather long and stout, being but little shorter than the antennæ; they are 4-jointed, the two basal and the last joints being broader than long; the third is a little longer.

*Mentum* elongated, somewhat narrowed anteriorly, bearing a trapezoidal palpigerous piece, which is narrowed at the base and has a small rounded projection on the inside, in the middle, especially distinct when seen from above; a bristle on each side of this projection and several bristles on the outside of the palpigerous piece, between the palpi; labial palpi consisting of two cylindrical, short joints; the second truncated at the tip.

The maxillæ and the palpigerous piece, with their palpi project considerably beyond the mandibles. The basal pieces of the mandibles and the mentum occupy the whole breadth of the underside of the head, their basis only being enclosed in the usual excision of the lower cephalic plate.

*Prothorax* trapezoidal; slightly broader than the head anteriorly; almost twice as broad posteriorly; its upper disc being recurved on both sides, somewhat encroaches on the underside, where it is limited by a sharply defined edge. On the underside, a V-shaped groove separates a triangular piece covering the basal portion of the head (see fig. 86).

The two following segments of the thorax are of about the same length, a little longer than the first; they are also trapezoidal, but less narrowed anteriorly; their upper disc is also recurved on both sides, so as to encroach on the ventral segments.

The sculpture of the three thoracic segments consists of a very fine, umbilicated punctuation, which is chiefly apparent on the first segment and more scattered on the others. There is besides, a longitudinal impressed line, running along the middle of the back of the three segments, with slight interruptions at the incisures; this line is continued also, although less distinctly, along all the abdominal segments.

*The feet:* coxæ elongated, subcylindrical, inserted near the lateral margin and directed obliquely towards the middle, so as almost to touch with the tip, that of the opposite coxa; trochanters well developed, elongated; femora subcylindrical; tibiæ short, narrower than the femora, subcylindrical, bearing a curved, pointed nail at the tip. The feet of the last pair are larger than those of the two other pairs. All three pairs have numerous bristles on the underside; the femora have a crown of very short, strong spines round the tip. The thoracic stigma is placed on the ventral side of the mesothorax, in the anterior corners, close by the recurved margin of the upper disc.

*The abdominal segments* viewed from above, resemble in size and shape the second and third thoracic ones; they are perhaps a little longer, chiefly the sixth, seventh and eighth and the middle ones a little stouter; the ninth or last segment is shorter than the preceding, narrowed posteriorly. The eight pairs of stigmata are placed laterally on the dorsal side of the first eight segments, about the middle of a longitudinal furrow. Each ventral segment consists of three portions; the middle one is square, and but slightly convex; it has a rounded, conchoid depression in the middle, with fine longitudinal striæ at the bottom (this depression is wanting only on the last segment); the lateral portions, separated from the middle one by longitudinal furrows, are elongated, smooth. These lateral pieces, together with the corresponding pieces, cut off from the dorsal segments by the stigma-bearing furrows, form an uninterrupted margin on both sides of the larva. Except the dorsal impressed line and some hardly apparent rugosities, the dorsal segments of the abdomen are smooth and even.

The last segment ends in a short pseudopod, in the shape of a flattened tube, directed downwards, truncated at tip; its basal portion is black and horny, with a small projection on each side; the remainder is of a fleshy substance. The anal opening seems to be at the tip of this tube.

The larva from Arizona is easily distinguished from the former by its coloring. The dorsal segments are dark brown or black anteriorly and brownish-yellow posteriorly, the black occupying more than half the length of the segment. The second and third pairs of feet have *two* ungues instead of one, the second being smaller (in the other larva this second un-

guis may be also perceived as a mere rudiment). The teeth or projections on both sides of the horny portion of the pseudopod are larger than in the former species; they are curved and pointed (unguiform). In all other characters, this larva agrees with the former. Its length is about  $2\frac{1}{4}$  inches.

The third species, communicated to me by Dr. Horn, was found under oak-bark, in a wet place. Although much smaller (it measures only 0.9), and of different color, it has exactly the same structure as the large larvæ, so as to make it appear very probable that it belongs to the same genus.

It is brownish-yellow; the middle portion of the dorsal segments is reddish-brown, thus leaving a yellowish margin; the pro- and mesothorax, as well as the last abdominal segment are reddish-brown. The venter shows none of the conchoid depressions of the large larvæ.

A specimen from Mississippi, similar to the latter in color and about an inch long, was communicated to Dr. LeConte by Prof. S. S. Haldeman, with the remark that it was luminous. Should this observation prove correct, it would not be surprising at all if the large larvæ were also luminous.

The points of relationship of these larvæ to the *Elateridæ*, *Lampyridæ* and *Telephoridæ* are evident; but the analogies to the two latter families prevail decidedly over those to the first. The mode of insertion of the head, the structure of the mandibles and maxillæ, the presence of an ocellus on each side, the form and position of the pseudopod, even the general appearance of the body are more like those of the *Lampyridæ*. Nevertheless the differences are obvious: the dorsal discs do not project on both sides over the ventral segments, the stigmata are placed on the sides of the body and not below, on the venter; the terminal joints of the palpi are stout and blunt, and not slender and pointed as in both *Lampyris* and *Telephorus*; the head, although inserted up to the root of the antennæ in the first thoracic segment, is not concealed by it, as in the *Lampyridæ*.

The analogies with the *Elateridæ* are hardly more than those also shared by the two other above named families; if there are any besides, they consist in the position of the stigmata and, perhaps, in the structure of the ventral side of the prothorax. But the differences are very considerable; our larvæ have neither the large head, entirely exserted from the prothorax, nor the peculiar structure of the basal pieces of the maxillæ and the labium which distinguish the *Elateridæ*. Besides they have a pair of ocelli, which are wanting in the latter, and the structure of the last abdominal segment with the pseudopod is totally different.

The mode of insertion of the mandibles of the larvæ of *Lycidæ*, they being approximated at the basis and divergent at the tip, at once excludes



our larvæ from this family.

Under such circumstances it is extremely difficult to form an hypothesis as to the insect to which these larvæ belong, however strange it may appear that such should be the case with larvæ nearly three inches long, and apparently so common.

Judging from the occurrence of large sized larvæ in the Southern States and of middle sized ones of the same genus in the Middle States, it becomes evident that this genus is represented by coleoptera at least an inch or an inch and a half long in the former and by smaller species in the latter. There being no such genus either among the *Lampyridæ* or *Telephoridæ*, or in their vicinity, we are compelled to look for it among the *Elateridæ*. This supposition, however improbable, is not entirely out of question since the discovery of the larvæ of *Cardiophorus* and *Cryptohypnus* has proved, that the type of Elaterideous larvæ is not so uniform, as it was formerly assumed. The genus *Melanactes* might perhaps answer the required conditions.

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#### EXPLANATION OF THE PLATE.

- FIG. 1. *Copris carolina*, nat. size; 1a, head, from above, with slightly opened mandibles; 1b, maxillæ and labium; 1c, maxilla.
- FIG. 2. *Zenoa picea*, nat. size; 2a, maxillæ and labium.
- FIG. 3. *Ptilodactyla elaterina*, magnified; 3a, maxilla; 3b, labium; 3c, antenna; 3d, underside of the head and of the anterior portion of prothorax.
- FIG. 4. *Fornax badius*, magnified; 4a, head and two first thoracic segments, from above; x tip of maxilla(?); xx mandible(?); y place of insertion of the antenna(?).
- FIG. 5. *Fornax orchেসides* (?), nat. size; 5a, head and portion of prothorax, from below, magnified; x minute retractile organ, perhaps tip of maxilla (?); xx mandible(?).
- FIG. 6. *Parandra brunnea* from above, nat. size; 6a, the same from below, magnified; 6b, head, from below.
- FIG. 7. *Arhopalus pictus*, magnified, from above; 7a, from below; the two last abdominal segments were somewhat extended in the two specimens from which these figures were drawn; in most of the other specimens, they were like fig. 7b, where the last pair of stigmata may be seen on the eighth segment; 7d, mandibles; the upper figure represents the inner surface, the lower one, the profile.
- FIG. 8. Unknown larva from Louisiana and New Mexico, nat. size; 8a, head and prothorax from above, magnified; 8b, the same, from below; 8c, mandible; 8d, tip of maxilla.

## NEW AMERICAN MICRO-LEPIDOPTERA.

BY BRACKENRIDGE CLEMENS, M. D.

## OPOSTEGA Zeller.

*Discoidal cell of wings open.* Hind wings extremely narrow, linear lanceolate. The subcostal vein is central and becomes trifold beyond the middle of the wing, sending an extremely short branch to the costa from the point of subdivision and two long branches, one of which runs to the tip of the wing and the other to the inner margin. The median vein is distinct, curved, simple and nearly joined by the inner extremity of the subcostal vein. The submedian distinct and short.

Fore wings pointed, almost candulate, but appearing from the cilia to be dilated posteriorly. *All the veins simple, parallel, without branches, some much attenuated and none extended to the tip of the wing.* Subcostal vein much attenuated, nearly obsolete, equally remote from the costa and the median vein, which is thickened and distinct, and runs through the middle of the wing without reaching the inner margin below the tip. The fold of the wing is distinct, with a parallel, much attenuated nervule above it arising at the extreme base of the median. The submedian vein distinct, thickened.

Head smooth above. Face mostly on the inferior surface of the head, extremely narrow, hairy beneath and between the antennæ in front. Eyes oval, obliquely placed, almost concealed by the antennal eye-caps. Antennæ with the basal joint expanded into a large eye-cap, which is thin and cup-like anteriorly. Labial palpi hidden on the under surface of the head, short, drooping, with the terminal joint very short. No maxillary palpi. No tongue.

**O. albogaleriella.**—Silvery white. Fore wings with a minute black dot at the extreme apex of the wing. Hind wings and cilia somewhat yellowish-white.

This insect is very interesting as it is the first extra-European member of the genus, as well as I can ascertain, that has been described. The imago was found on the table under my gas-light on the morning of the 9th of July. It was only slightly injured, the stalks of the antennæ having been burned off and the cilia of one pair of wings a little burned.

None of the larvæ belonging to this genus have been discovered.

## TRICHOTAPHE Clemens.

**T. flavocostella.**—*G? flavocostella*, Proc. Acad. Nat. Sci. May, 1860, p. 162.

I have not met with another specimen of this insect, but have been enabled to determine its genus from the following, which resembles it close-

ly in many respects. These insects must be handled very carefully when they are taken, as the labial palpi are easily detached even whilst they are living.

**T. alacella.**—Labial palpi second joint orange-yellow, terminal joint tinged with fuscous. Head deep brown above, iridescent. Face shining pale yellow. Antennæ deep brown. Fore wings deep brown, with a steel-blue, shining streak along the costa, extending from the base to an orange-yellow costal spot at the beginning of the apical cilia, and deeply excised in the middle of the wing. Beneath the excised portion and near the inner margin is a short, steel-blue streak, and the costal streak emits a slender line to the inner margin, opposite the costal orange-yellow spot. Hind margin with a series of steel-blue dots. Cilia brown. Hind wings fuscous, cilia a little paler.

Taken on wing 17th of July.

#### **SOLENOBIA ? Zeller.**

In the hind wings the costal vein is well developed and placed close to the costa. The subcostal vein is simple, giving rise near its middle to an angulated discal vein which sends off a branch to the margin beneath the tip and receives the discal fold at its angle. The median subdivides into *four branches, the two superior branches having a common origin, the others short and equi-distant.*

The subcostal vein of the fore wings sends off a long, decided marginal branch from the basal third; about the middle of the wing forms a long, rather large secondary cell, from the hinder end of which arise two marginal branches, and from the point where the lower branch of the secondary cell enters the discal two other branches arise diverging from their origin, one to be delivered above and the other beneath the tip. Opposite the discal fold arises another branch running to the margin beneath the tip and the median vein subdivides into three nearly equi-distant, short branches, the posterior of which is nearly perpendicular to the inner margin. The submedian is short and furcate towards the base for half its length.

Head hairy above and in front; without ocelli. Eyes small, spherical, slightly naked above. Cephalic stigmata very large and distinct. Antennæ setaceous, scaly and tufted slightly above towards the end, ciliated beneath. *Maxillary palpi, labial palpi and tongue undeveloped.*

**♂ Walshella.**—Head and face dark gray. Antennæ dark gray, slightly spotted with white. Fore wings pale gray, varied with fuscous sprinkled over the surface, without defined markings, except along the costa near the tip, where there are a few pale grey or whitish spots. Cilia gray. Hind wings gray.

I received a specimen of the above insect sometime since from my esteemed friend Benj. D. Walsh of Rock Island, Ill., who was compelled to

fix it to a strip of card for the want of small pins. The specimen may have been injured in its parts by this treatment, but I cannot discover any injury. He likewise forwarded at the same time a specimen of the case, which is earth-brown in color and consists of silk, granulated with particles of fine sand, and therefore the larva could not have been a wood miner as Mr. Walsh at first supposed. The larva is in all probability lich-enivorous and feeds in the portable case in which Mr. Walsh found it in the fall. I sincerely hope the discoverer of the species, will not fail to ascertain the natural history of the larva and put it on record in the pages of the "Journal," for I know no one who can do this more pleasantly and accurately.

In his letter to me Mr. Walsh says: "The little moth I sent you is certainly not a 'wood-miner' although it occurs under the bark of shag-bark hickories and other trees with scaly bark. From finding the larva late in the fall and the winter enclosed in its case in that situation, I had supposed that it fed under the bark; but I ascertained in August and September that it was not there and therefore conclude that it merely retires there to become a pupa. I noticed an individual apparently identical this winter attached to a pine board fence. There was not the least appearance of 'mining' under the bark, by which I understand cutting a channel similar to other boring insects."

Only the males of the genus *Solenobiu* are winged, and the females have attracted much attention recently, in consequence of the fact that they lay unimpregnated fertile eggs.

#### NEPTICULA.

**N. fuscotibiella.**—Antennæ dark fuscous, basal joint silvery white. Head reddish-yellow. Fore wings purplish-fuscous, with a rather broad, slightly oblique silvery band exterior to the middle of the wing. On the costa of the wing the band is rather nearer to the base than on the inner margin; cilia pale grayish. Hind wings pale gray, with pale gray cilia. Thorax dark fuscous with a purplish hue. Legs and abdomen beneath yellowish with a brassy lustre, the hind tibiae fuscous.

Taken at light on the 11th of August.

**N. bifasciella.**—Antennæ pale fuscous, basal joint silvery. Head pale reddish-yellow. Fore wings dark bronzy-green, somewhat purplish at the base, with two silvery bands; a rather broad, straight one on the basal third of the wing, and a narrower straight one on the apical third; cilia gray. Hind wings gray, with gray cilia.

At light, 11th of August.

**N. Platanela.**—Antennæ dark fuscous, eye-caps large, silvery. Head reddish-ochreous. Fore wings dark brown, with a small white, slightly silvery spot on the middle of the inner margin and a very short costal streak of the same hue

opposite to it. The cilia very pale yellowish and the scales behind the cilia of the same hue tipped with dark brown. Hind wings yellowish-fusca; cilia fuscous.

Imago during the latter part of July.

#### LYONETIA Hübner.

The hind wings are setaceous. The subcostal is placed nearly in the middle of the wing, is bifid from about the middle sending a small branch to the costa and a long one along the inner margin to the tip. The median vein is very distinct and simple.

Fore wings *caudate*, when denuded. The discoidal cell is very long and narrow, acute behind. The subcostal vein sends two branches to the costa, a moderately long one from the middle of the cell and one just behind the acute angle of the disk. (In European specimens there are three subcostal branches, two of which are given off near the end of the disk.) The apical branch and the superior branch of the median vein arise at the angle of the disk, the former of which is trifid, sending a branch to the costa at the beginning of the slender tail, another to the inner margin a little beyond it and a branch to the tip of the wing. (In European specimens the apical branch is represented simple.) Median vein two-branched. *The submedian with a long fork at its base.*

Head smooth with appressed scales, face broad and retreating, slightly tufted above with erect scales. Antennæ *as long as the anterior wings*, slender, with a moderate sized basal eye-cap, partly concealing the eyes. Labial palpi slender, cylindrical, ascending (in the living insect) to the basis of the antennæ, much separated; in the dead insect, drooping and applied to each other. Tongue naked, a little longer than the labial palpi.

**L. speculella.**—Head, face and palpi pure white. Antennæ slightly fuscous, basal joint white. Fore wings pure white, with a bronzy-fusca streak on the inner margin, which is obliquely inclined to the tip of the wing, extending a little above the fold and pointed behind, and a short streak of the same hue behind it and nearly parallel to the inner margin. Near the apical portion of the wing are four bronzy-fusca costal streaks, the most interior one of which is oblique and the others nearly vertical and more or less united in the middle of the wing, and at the extreme apex is a black spot. Hind wings darkish gray, with gray cilia.

Imago on wing the 5th of August.

The larvæ of this genus are represented to make long tortuous galleries or tracts in leaves, and to quit the leaf when full fed. I have never bred an imago of this genus, nor can I say with certainty that I have met with a larva belonging to it. I suspect, however, that the mine presently to be described is the work of one of them, although the larva much resembles

*Phyllocnistis* in its habits.

The mine to which I refer may be found during the latter part of August in the leaves of wild grape-vines. It is very long, winding, linear and narrow, *filled with blackish frass* and hence easily seen, differing thus from a *Phyllocnistis* mine, which resembles the tracings left on leaves by snails. When the larva is full fed, it enlarges the mines at its extremity, without making the enlargement transparent, and making a fold in the leaf at this point, weaves its cocoon and undergoes its transformation in the mine like a *Phyllocnistis* larva. The larva is pale greenish, immaculate, *long and very slender, with the anal segments very pointed*.

Since writing the preceding remarks on the larva that makes the blackish mine in wild grape leaves, and which I suspected might be a *Lyonetia*, I examined one of the pupa I had obtained from the miner. This although dead, had completed its full development and the markings on the wing, extracted from its wing-case, were beautifully distinct. The imago was certainly not *L. speculella*. In its unexpanded state, a wing is quite opaque and the neurulation very indistinct and I judge that the chitinic matter of the veins is not secreted until after the escape of the imago from the pupa-case. The neurulation of the insect under consideration, was that of *Phyllocnistis* and so also was the ornamentation of the wing, and it appeared to me to be distinct from that of *P. vitigenella*, although very similar to it.

#### **TENAGA.** new gen.

Hind wings lanceolate. Without discoidal cell. The costal vein is delivered to the costa about its apical third. The subcostal simple, almost or quite obsolete from the middle to the base of the wing. The discal vein is central, much attenuated through the middle of the wing, giving rise to a branch to the inner margin about the middle of the wing, the base of which is extremely attenuated, becoming furcate about the apical third, delivering both branches to the inner margin beneath the tip. The median vein is 2-branched, the superior one, angulated in the middle.

Fore wings ovate-lanceolate. Discoidal cell very narrow and placed rather beneath the middle of the wing. The subcostal vein is rather indistinct, sending off a costal branch from the basal third, and near the end of the cell two costal branches, *the second one of which is furcate and much attenuated from the bifurcation to its origin*. Near this last branch arises another furcate branch, *much attenuated towards its base*, both of whose branches are delivered to the inner margin beneath the tip of the wing. The median vein is 3-branched. The submedian simple.

Head and face rough, hairy. Without ocelli. Eyes very small, hemispherical, with a narrow space around, naked. Antennæ nearly as long as the fore wings, setaceous, simple. Labial palpi, in the living insect, ascending to the middle of the face, rather slender, cylindrical, smooth and almost concealed in the facial hairs; middle joint slightly thickened and roughened with scales beneath, with terminal bristles; terminal joint about half as long as the middle joint; in the dead insect, the palpi are drooping and divergent. *No maxillary palpi. No tongue.*

*T. pomiliella*.—Head and palpi dull ochreous. Antennæ dark fuscous. Fore wings yellowish-ochreous, with a black spot on the costa at the base of the wing and with three black bands, one near the base, one rather behind the middle of the wing, and one about the apical third, interrupted more or less in the middle. In the spaces between the bands are scattered black scales. The extreme apex of the wing is blackish, with two costal spots of the same hue between the third band and the apex, and two or three along the inner margin behind the apex some of which are indistinct. Cilia of the general hue. Hind wings and cilia grayish-fuscous.

Taken on wing 27th of July in damp wooded places.

#### HYEROMA. new gen.

The venation and form of the hind wings are much like that of *Tenaga*. The costal vein enters the costa about its middle. The subcostal is simple, almost obsolete posteriorly. The discal vein is central, much attenuated behind, giving rise behind the middle of the wing to a branch to the inner margin, attenuated at its base and at the apical third of the wing *becomes bifid sending one branch to the costa above the tip and the other to the inner margin beneath it.* The median runs straight to the inner margin and is 2-branched. Without discoidal cell.

Fore wings ovate-lanceolate; the subcostal vein is much attenuated from its middle and gives rise to *a costal branch behind the basal third* and forms a rather large secondary cell, the branch forming it almost obsolete, and from its hinder end throws off three costal branches nearly equidistant. Beneath these arises the apical branch which is simple and delivered to the costa behind the tip. Two other branches are given off from the disk to the inner margin beneath the tip. Median vein 3-branched. Submedian simple. Discoidal cell fusiform, rounded behind.

Head and face rough, hairy. Without ocelli. Eyes very small, hemispherical. Antennæ *rather more than half so long as the fore wings*, setaceous and simple. Labial palpi slender, cylindrical, much separated; middle joint with short terminal bristles; terminal joint nearly as long as the middle, deflected. *Marillary palpi long, folded, four or five jointed. Tongue very short*, reaching to the end of the middle joint of labial palpi.

**H. servulella.**—Head and palpi pale yellow, the latter fuscous beneath. Antennæ dark fuscous. Fore wings sulphur-yellow, with a dark fuscous streak along the costa from the base, slender at first but enlarged into a spot about the middle of the costa; a band of atoms of the same hue, commencing on the costa at the beginning of the apical cilia and a streak of the same hue along the inner margin, with its hinder end turned up obliquely towards the costa. Hind wings dark brownish.

Taken on wing 18th of July.

The venation of *Eularcia*, *Tenaga* and *Hybroma* are much alike, particularly that of the hind wings; the species included in them are congeneric and to the group thus formed, that of *Diachorisia* may be likewise added. If we disregard the significance of venation, the number of genera can be reduced. But nature does not make variations of structure without attaching to the change some difference of habit, some distinction in the biography of the individual. I have no doubt of the naturalness of the genera and they are probably peculiar to our own country.

#### DYSODIA Clemens.

Proc. Acad. Nat. Sci. Aug. 1860, p. 349.

**D. margaritana.**—Head black, with two pale yellow spots behind the antennæ. Palpi pale yellow, black above. Antennæ black. Prothorax pale yellow. Fore wings black, with a double, translucent, yellowish-white discal spot extending nearly across the wing and six dots of the same hue along the costa. Beneath the fifth costal dot are three round spots of the same hue, the middle one, larger than the others. Cilia black, with a white spot beneath the tip and one at the inner angle. Hind wings black, with a large, translucent, yellowish-white discal spot and two round dots of the same hue between it and the hind margin. Cilia black, with two white spots about the middle of the hinder margin. Tegulæ pale yellow. Hind tibiæ with a pale yellow, central band. Abdomen black, with a dorsal, pale yellow stripe on the basal segment, white in the middle above, and with two white dots on each side, one about the middle, the other near the end.

From Illinois (Mr. Robt. Kennicot). Florida (Mr. Edward Norton).

—:—



**The Tarantula (*Mygale Hentzii Girard*) and its Destroyer (*Pompilus formosus Say*).**

BY S. B. BUCKLEY.

In Texas there is a large brownish-black spider, whose body is covered with short glossy hairs. It is armed with large, curved cheliceres or fangs of a glossy black color. This spider is commonly known as the Tarantula. Wonderful stories are told of the poisonous character of its bites, which are said to have proved destructive to several human beings. This is one of the largest spiders of North America, only being excelled in size by the *Mygale americana* of the Central American region. Full grown specimens of our species are about two inches long and one and a quarter broad. Its habits are those of the other hunting spiders; it has no web but lives in cavities, excavated by itself, in the earth. The entrances to these cavities are said to be sometimes closed by a trap-door, which, however, I have never observed, though when in Texas I have frequently seen their domicils in which they were hiding with only their heads projecting above the openings. Sometimes it lies in wait near its den. At other times it sallies forth moving slowly in the neighborhood of its dwelling, and should it discover a weaker insect it darts quickly and often secures the unwary one for its food.

It very rarely injures any person as it never bites unless disturbed, nor does it often choose an abode near houses. I have several times teased it with a long stick but could never make it jump more than a few inches. It would stand erect and fight bravely, biting the provoking instrument, but would always run away the minute the stick was withdrawn. The Texan Tarantula is entirely distinct from the spider of the same name found in Italy, belonging in fact to a different genus. The *Mygale Hentzii* was first described by Girard in Marcy's Report of the Exploration of the Red river of Louisiana.

To prevent too great an increase of these large spiders, Providence has created an insect of the wasp family (*Pompilus formosus Say*) called by the Texans the Tarantula-killer. It is about an inch and a half long, with a bluish-green body and golden-rufous wings. It is a bustling unquiet insect, always in motion, flying now here, now there, and when running on the ground, its wings are in a constant state of vibration. Should it discover a Tarantula it begins instantly to fly in circles in the air, around its victim. The spider, as if knowing its fate, trembles violently, standing up and making a show of fight, but the resistance is very feeble and of no avail. The spider's foe soon discovers a favorable moment and darts upon the Tarantula whom it wounds with its sting, and again commences flying in circles. The injured spider is thrown into a tremor and often

becomes paralyzed, though the infliction of a second and even a third wound is sometimes necessary. Sooner or later the spider becomes powerless, when the victor approaches carefully feeling its way to see if its work has been effectually performed. It then begins to drag the Tarantula into a hole which it has previously dug in the ground where, after the desposition of its eggs by the *Pompilus*, the spider is covered up and allowed to remain.

By some wonderful provision the spiders are preserved fresh to afford food for the young of the *Pompilus*. The same poison which kills the spider appears to prevent it from decaying.

I once met a *Pompilus* who had just killed a large *Mygale*. This was in Central Texas, in mid-summer when the rain had not fallen for a long time and the prairie-soil was filled with numerous sun-cracks. The weight of the spider was, at least, three times that of the wasp, yet the wasp running backwards, dragged it along through the dry grass which offered considerable resistance, overcoming every obstacle by earnest perseverance. The route was rendered still more difficult by the cracks in the soil, down which both occasionally tumbled, and several times I thought the Tarantula was lost at the bottom of a crack, but both would soon again emerge. I had never seen such an exhibition of strength and perseverance even among ants. I watched for half an hour, much interested, the energetic wasp dragging the spider through cracks and over fallen weeds, and through fences, and I following determined to see the result, although it was near sunset and I was distant from our encampment. After going a short distance, the wasp and spider fell into a large crack. I was then sure that the *Mygale* had been lost. After a little I bent down to see what had become of them, and was much surprised at seeing the wasp dragging the spider from the crack. At such an exhibition of strength I inadvertantly exclaimed aloud, "You are a stout fellow!" This exclamation caused the wasp to drop the spider and gaze a moment, having noticed me then, for the first time, it then flew three or four times around the spider, as if to mark its locality, and then went away. Sorry for its departure I took the spider to our tent and preserved it in alcohol. It is now in the Geological Rooms at Austin in Texas.

Mrs. Halsey of Chappell Hill, Washington Co. Texas, showed me a hole in the ground into which a *Pompilus* had been seen to take a *Mygale*. The hole had been excavated by the wasp; it was altogether twelve inches long, descending at an angle of about forty five degrees to the extent of eight inches, afterwards horizontally for four inches, and at the end of the horizontal portion the spider was buried.

## STATED MEETING, FEBRUARY 10.

President NEWMAN in the Chair.

Twenty seven members present.

## REPORT OF COMMITTEE.

The Committee on Mr. Norton's paper read January 13th, reported in favor of its publication in the Proceedings of the Society.

## DONATIONS TO CABINET.

87 specimens of COLEOPTERA (*Chalcophora liberta* and *Coccinella 5-notata*) and 40 HOMOPTERA (*Aphis avenæ*), from T. B. Ashton.

40 specimens of COLEOPTERA (*Cicindela marginipennis*, *Carabus Lapilayi*, *Callida smaragdina*, *Lebia mastæ*, *Bolbocerus cornigerus*, *Polyphylla occidentalis*, *Chalcophora fortis*, *Dicerea mutica*, *D. tenebrosa*, *D. lepida*, *D. pugnata*, *Cinyra gracilipes*, *Melanophila notata*, *Tharops ruficornis*, *Elatér Sturmi*, *E. discoideus*, *E. Sayi*, *E. rubricus*, *E. militaris*, *Athous equestris*, *Corymbites trivittatus*, *Platocerus Schaumii*, *Odontonyx ornata*, *Ectopria thoracica*, *Eucrada humeralis*, *Apate* n. sp., *Cistela erythroptera*, *Tylonotus bimaculatus*, *Sphenostethus scirripennis*, *Sclerocerus linearis*, *Necydalis mellitus*, *Physocnemum Andree*, *Phymatodes dimidiatus*, *Phymatodes* n. sp., *Purpuricenus humeralis* (two beautiful varieties), *Argaleus nitens* and *Strangalia emarginata*), from George Newman.

40 specimens of COLEOPTERA (*Calosoma laqueatum*, *Cucujus puniceus*, *Ancylochira Langii*, *A. confluens*, *Elatér apicatus*, *Limoniæ properus*, *L. discoideus*, *Podabrus torquatus*, *Clerus sphægus*, *Thanasimus nigriventris*, *T. rubriventris*, *Stereopalpus badiipennis*, *Horia Stansburii*, *Lytta cyanipennis*, *Asemum atrum*, *Crossidius pulchellus*, *Eriphus discoideus*, *Acmaeops vincta*, *Leptura carbonata* and *Myzia subvittata*), from Jno. Pearsall.

30 specimens of COLEOPTERA (*Carabus Chamissonis*, *Calosoma Zimmermani*, *Agonum perticornis*, *Lichnanthe vulpina*, *Megasoma Thyrsites*, *Chalcolepidius rubripennis*, *Sericosomus incongruus*, *Lycus cruentus*, *Ergates spiculatus*, *Derobrachus geminatus*, *Purpuricenus* n. sp., *Dendrobium quadrimaculatus*, *Tragidion annulatum*, *Arhopalus eurystethus*, *Ædilis* n. sp., *Monohammus clamator* and *Leptura serripilota*), from Henry Ulke.

18 specimens of COLEOPTERA (*Cychrus angusticollis*, *C. marginatus*, *Nebria metallica*, *Pasimachus sublaevis*, *Dyschirius æneolus*, *D. hæmorrhoidalis*, *D. filiformis*, *Ancylochira rutilicoræ*, *A. maculiventris*, *Chrysobothris* n. sp., *Campylus denticornis*, *Phengodes plumosa*, *Trichodes apivorus*, *Lymerylon sericeum*, *Allecula nigrans*, *Pytho americana*, *Clytus 4-maculatus* and *Centrodera decoloratus*), from James Ridings.

9 specimens of COLEOPTERA (*Nomarectus caricollis*, *Olisthopus parmatæ*, *Psephenus Lecontei*, *Chanthon praticola*, *Chalcophora lacustris*, *Brachycrepis binus*, *Horia sanguinipennis*, *Prionus emarginatus* and *Obeera perspicillata*) from Dr. T. B. Wilson.

5 specimens of COLEOPTERA (*Rhadine larvalis*, *Cymatodera undulata*, *Priocera castanea*, *Cupes cinerea* and *Gracillia fusca*), from Dr. Samuel Lewis.

4 specimens of COLEOPTERA (*Agrypnus Sallæi*, *Pityobius anguinus*, *Tarsostenus albofasciatus* and *Coccidula lepida*), from J. H. B. Bland.

1 specimen of COLEOPTERA (*Strangalia cruentata*), from Charles Wilt.

Total,—274 specimens.

#### DONATIONS TO LIBRARY.

*Synopsis of the Neuroptera of North America*, by Hermann Hagen, 1861. From the Smithsonian Institution.

*Proceedings of the Boston Society of Natural History*, Vol. 8, pages 225—256. From the Society.

*Prairie Farmer* (Chicago, Ill.), Nos. 3 to 6 of Vol. 9. From the Editors.

*Griffith's Cuvier's Animal Kingdom*, 2 Vols. on Insects, London, 1832; and *Stephens's Nomenclature of British Insects*, London, 1829. From James Ridings.

*Naturalist's Library*, 1 Vol. on Insects, London, 1852. From John Pearsall.

*Notice of the genus Selandria, and Descriptions of several of Harris's named Tenthredinidæ*, by Edward Norton. From the Author.

#### WRITTEN COMMUNICATIONS.

A letter was read from Mr. William A. Nason, dated Chicago, Ill., Jan. 20th, 1862, acknowledging his election as a Correspondent of the Society.

A communication was read from Mr. T. B. Ashton, dated North White Creek, Washington County, New York, January 10th, 1862, in which he makes the following observations:—

“*APHIS AVENÆ Fabr.*, has been found the past season in vast numbers upon the heads of Oats, clustering around the grain just where it joins the stalk. They have been met with, the past season, through all this section of country, and no field, in any situation that I have visited, has been free of them. They extract the juice from the stalk that is designed to mature its fruit, consequently the grain is not of the usual heft. They were to be found in much larger numbers upon late, than early oats. They disappear from a field as soon as the grain becomes ripe or is cut and dried. They have never been noticed by people in general until the past season, though, it is said, they have existed in small numbers in this vicinity for many years. Many species of *Coccinellidæ* with their larvæ feed upon and destroy myriads of them, and thus holding them in check, showing us that the All-Wise Creator commissions ‘minims’ of nature to destroy the ‘expectations of man’ and at the same time bids them ‘thus far shalt thou go and no further.’

"COCCINELLA 5-NOTATA Kirby, has been abundant throughout all this section of country the past season. So scarce has this insect been in past years that I have never met with but three specimens of it in all my collecting. This species, together with *C. novemnotata*, has destroyed countless numbers of the Grain Aphis (*Aphis avenæ*) this season.

"CHALCOPHORA LIBERTA Germ., is to be met with in the month of September, feeding upon the leaves of young White and Pitch Pine (*Pinus strobus* and *P. rigida*) situated in open fields and at the margin of woods.

"CHALCOPHORA VIRGINICA Drury, with other species of this genus, can be found in company with *C. liberta*.

"It is most likely that all species of *Chalcophora* (and many species of other genera of *Buprestidæ*), found in Northern New York in the month of September, live in the imago state through the winter. I once found a specimen of *Chalcophora* in the second week in April, which had, no doubt, survived the winter. I have also met with specimens of two species of *Dicerca* near Philadelphia in the winter.

"I have taken hundreds of *Chalcophora liberta*, and many of other species of this genus, in the month of September, but do not remember of ever meeting with them in copulation at this season. They are generally met with while feeding, and not in situations to deposit their eggs, which would indicate that their eggs are not deposited so late in the season as September."

The following papers were presented for publication in the Proceedings:-

"North American Micro-Lepidoptera, by Brackenridge Clemens, M. D."

"Characters of the larvæ of Mycetophilidæ, by Baron R. Osten Sacken."

"Synopsis of Families of Heterocera, by Brackenridge Clemens, M. D."

"Notes upon Grapta comma of Harris, and Grapta C-album, by W. H. Edwards."

And were referred to Committees.

#### ELECTION.

Dr. C. A. Helmuth of Chicago, Ill., was elected a *Correspondent* of the Society.

Notice of several new species of **TENTHREDINIDÆ**.

BY EDWARD NORTON.

**ALLANTUS** Jurine.

**A. excavatus**, n. sp. Length 0.39. Ex. wings 0.79 inch.

♀. Black, edge of collar, basal plates (of metathorax) and apex of abdomen, white. Antennæ stout (as in *basilaris*), two basal joints white; a faint spot in middle of labrum and the palpi, whitish; mandibles black; head, thorax, posterior coxæ and femora covered with deep pits; abdomen shining; all the upper edge of collar (tegulæ black), a spot beneath tegulæ, basal plates, apex of abdomen and tips of four apical segments above, white; a rufous spot on each side of second segment, near its base; tips of coxæ, trochanters, base of femora, tips of four anterior femora and their tibiæ and the posterior tibiæ, except at tip, white; all the tarsi slightly rufous or blackish. Apical half of wings deeply clouded, fading into smoky yellow towards centre; basal half of stigma pale.

One specimen; Maryland. (Coll. Phil. Ent. Soc.)

This has the lanceolate cell open, with oblique cross line, as in *Macrophya* Sec. 1, Hartig, but the femora are short, as in *Allantus*.

**STRONGYLOGASTER** (TENTHREDO) Dahlbom.

**S. multieinctus**, n. sp. Length 0.34. Ex. wings 0.68 inch.

♀. Black, with whitish abdominal bands. Antennæ hardly longer than thorax, somewhat thickened in middle, end joint decreasing in size. Head and face dull, rough with large pits; thorax and abdomen shining, the former with large scattered punctures; palpi pale, face black, with a few pale hairs; edges of ovipositor sheath fringed with long pale hair; basal half of each segment of abdomen straw colored; tips of femora, the tibiæ and tarsi pale reddish, posterior knees almost white; anterior tibial spur bluntly bifid, posterior tibial spurs very short and blunt; wings hyaline, stigma and costa pale.

One specimen from Virginia. (Coll. Phil. Ent. Soc.)

This agrees with *Strongylogaster* Hartig, Tribe 2, in its lanceolate open cell and two inner underwing cells. Its "third joint of antennæ longer than fourth" and deeply emarginate nasus would place it in *Allantus* Stevens. It resembles *Str. cingulata* of Europe.

**TENTHREDO** Hartig.

**T. 14-punctatus**, n. sp. Length 0.34. Ex. wings 0.68 inch.

♀ ♂. Greenish-white, spotted with black, above. Antennæ long and slender, upper side black, third joint a little longer than fourth, nasus not emarginate; thorax irregularly marked with black above; scutellum pale; a broad stripe through the middle of seven basal segments of abdomen and seven dots on each side near the base of each, black; the upper side of legs black, except on the coxæ, base of femora and an interruption near the base of tibiæ; wings hyaline, stigma and costa pale; under wings without middle cells.

Two specimens from Virginia. (Coll. Phil. Ent. Soc.)

The tergum of the male is irregularly marked and the black tibial line

is not interrupted.

The absence of middle under wing cells is not uncommon in certain species in this country. In these the males only are sometimes deficient and sometimes have only one wing perfect. These variations seem to occur in but few species, and never in the majority of others.

#### **EUURA** Newman.

**E. orbitalis**, n. sp. Length 0.16. Ex. wings 0.32 inch.

♀ ♂. Shining black. Apical half of antennæ pale beneath, third joint hardly longer than fourth; head pale luteus, a large black spot on vertex; clypeus wide, retracted; mandibles at tip black, palpi irregularly black; tegulæ, edge of collar, a spot on first segment of abdomen and the legs, pale luteus; posterior tibiæ at tip and tarsi above, blackish; wings hyaline; stigma large, pale at base.

Inhabits Conn., and Brooklyn, N. Y. (Mr. Akhurst.)

Four specimens, two of which were taken on the willow.

#### **LYDA** Fab.

*Anterior tibia without side spur. Fourth joint of antennæ hardly longer than fifth.*

**L. semicinctus**, n. sp. Length 0.34. Ex. wings 0.74. inch.

♀. Color black, with white spots. Antennæ white; apical half of two basal joints blackish; orbits and back of head white, except at summit; two dots back of ocelli and one beneath, two interrupted lines from orbits to ocelli, nasus and tip of labrum white; tegulæ, edge of collar, V-spot, scutellum and behind, edge of three apical segments, edges of tergum and legs white; middle of femora and tips of tibiæ and tarsi black; wings faintly clouded, a smoky spot on upper pair below lanceolate cell.

One specimen from Virginia. (Coll. Phil. Ent. Soc.)

#### **XYELA** Dalman.

**X. tricolor**, n. sp. Length 0.30. Ex. wings 0.72 inch.

♂. Steel-blue, red and black. Antennæ black; body steel-blue; spots at insertion of antennæ, nasus, labrum, mandibles, palpi and edges of ventral segments white; nasus edged with black, emarginate; mandibles tridentate, inner edge rufous; legs rufous, tips of posterior femora, the tibiæ and tarsi black; intermediate tibiæ with five, posterior with six spurs; wings hyaline, stigma black, nervures as in *infuscata*, except the costal space, which is widened and divided by a slender longitudinal nerve, opening into a Y near the stigma.

One specimen from Kansas. (Coll. Phil. Ent. Soc.)

#### **XIPHYDRIA** Latr.

**X. attenuatus**, n. sp. Length 0.26. Ex. wings 0.38 inch.

♂. Color pale honey-yellow, body very slender. Head smooth, face rough below ocelli; antennæ slender, black, the two basal joints white; a spot inclosing ocelli. tips of mandibles and front angles of mesothorax black; on each side of prolonged neck, a blackish line; pectus and legs paler than body; wings hyaline, stigma pale.

One specimen; Pennsylvania. (Coll. Phil. Ent. Soc.)

PROCEEDINGS  
OF THE  
ENTOMOLOGICAL SOCIETY  
OF PHILADELPHIA.

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No. 6.

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STATED MEETING, MARCH 10.

President NEWMAN in the Chair.

Sixteen members present.

REPORTS OF COMMITTEES.

The Committees on the papers of Dr. Clemens, Baron Osten Sacken, and Mr. Edwards, read February 10th, reported in favor of their publication in the Proceedings of the Society.

DONATIONS TO CABINET.

58 specimens of HYMENOPTERA, 17 DIPTERA, 10 COLEOPTERA, 6 HEMIPTERA, and 2 LEPIDOPTERA, from George Hill.

23 specimens of LEPIDOPTERA, from H. T. Fay.

25 specimens of DIPTERA (*Arrhenica longicornis* Walk., *Brachyden-tera dimidiata* Loew, *Ceratopogon argentatus* Loew, *Epiphragma fascipennis* Say, *Paralimna appendiculata* Loew, *Prochyliza xanthostoma* Walk., *Rhamphomyia brevis* Loew, *Rhamphomyia glabra* Loew, *Rhamphomyia longicauda* Loew, *Tetanocera arcuata* Loew, *Tetanocera combinata* Loew, *Tetanocera plumosa* Loew, *Trypeta alba* Loew, *Trypeta*



*albidipennis* Loew, *Trypeta bella* Loew, *Trypeta obliqua* Say), 2 HOMOPTERA (*Psylla venusta* O. S.) and 1 COLEOPTERA (*Porphyraspis cyanea* Say), from Baron R. Osten Sacken.

2 specimens of COLEOPTERA (*Lytta Engelmannii* Lec.), 2 LEPIDOPTERA, (*Colias cæsonia* Godt.) and 2 HOMOPTERA (*Cicada* ———), from T. B. Ashton.

2 specimens of COLEOPTERA (*Megalosoma elephas* Oliv. ♂ ♀), from Dr. T. B. Wilson.

1 specimen of COLEOPTERA (*Dynastes Hercules* Fab. ♂), from Dr. Samuel Lewis.

3 specimens of COLEOPTERA, from J. H. B. Bland.

3 specimens of COLEOPTERA, from Charles A. Blake.

Total,—159 specimens.

#### DONATIONS TO LIBRARY.

*Prairie Farmer* (Chicago, Ill.), Nos. 7 to 10, of Vol. 9. From the Editors.

*Proceedings of the Society, for January and February, 1862.* From the Publication Committee.

#### WRITTEN COMMUNICATIONS.

A letter was read from the Chicago Academy of Sciences, dated Chicago, Ill., February 11th, 1862, acknowledging the receipt of the first four numbers of the Proceedings of the Society.

The following papers were presented for publication in the Proceedings:—

“Descriptions of some new North American Coleoptera, by George H. Horn, M. D.”

“On Winter Collecting,” by H. T. Fay.”

And were referred to Committees.

#### ELECTIONS.

Mr. John W. Keating, of Philadelphia, was elected a *Member* of the Society.

And Mr. W. J. Howard, of Central City, Colorado Territory, was elected a *Correspondent*.

## NORTH AMERICAN MICRO-LEPIDOPTERA.

BY BRACKENRIDGE CLEMENS, M. D.

## BEDELLIA SOMNULENTELLA.

In the January number of the Proceedings of the Academy of Natural Sciences for 1860, page 8, I described a species of the genus *BEDELLIA* under the specific name *Staintoniella*. Subsequently Mr. Stainton, of London, pronounced our American species to be the same as the European, and kindly sent me specimens for comparison. Our insect should hence be known as *somnulentella*, the name of the European species with which it is identical.

Early in last October, a little friend who amuses himself by searching for mined leaves for me, brought me some leaves of the Morning Glory (*Ipomoea purpurea*), in which he had detected mines. It instantly occurred to me that they were the work of a species of *Bedellia*, as I knew this to be the food-plant of the genus. The leaves were put in breeding-vessels, and in due time I had the satisfaction to secure a number of imagoes. The species is double-brooded; the last brood appearing during the latter part of October and early in November.

The larva and its habits are described in European works, but I desire to put on record in the Proceedings, for the benefit of American students, my own description of its habits.

In early life the larva mines in a narrow, very serpentine track, sometimes intricately winding, and much resembling the mine of a *Nepticula* larva. It is perfectly transparent, with a central line of "frass," but in consequence of exposure to the weather, after its abandonment by the young larva, the delicate cuticles of the leaf are destroyed. When the young larva is about one line long, it appears to leave the linear mine, and thenceforward it mines the leaf in *blotches*, entering between the cuticles from the under surface. These blotches are perfectly transparent, or glassy in appearance, when the leaf is held up to the light, and the larva, with its peculiarities of coloring, is seen with perfect distinctness. The point at which the larva raises the lower cuticle of the leaf is maintained open, and the terminal rings of its body remain at this opening, or the larva retreats to it to void its "frass" externally. One leaf is often inhabited by several larvæ.

The lower surface of the leaf is occupied around the mined places by numerous cross-threads, woven by the larva and which resemble spider-threads. These are freely traversed by the larvæ in moving from one part of the leaf to another.

In locomotion, the movements of the larva are those of a half looper.

The larva is slender, rather moniliform, and somewhat flattened. The body is tuberculated along the sides of the segments with round nodules. The terminal prolegs project behind, like a little fork; the abdominal prolegs are very short and slender, and four in number; the pair on the 8th segment is rather larger than the others.

It is beautifully colored. General hue, greenish, varied with dark reddish, with six dark reddish tubercules on each side. On each side the 5th segment is a pair of white tubercules, and two more pairs of the same hue on the 8th and 9th, and a single white one on each side the 6th. Head pale brownish, as well as the second segment.

The pupa is naked, not enclosed in a cocoon, and is fixed by the tail at the junction of cross-threads on the under surface of the leaf of the food-plant, or other convenient neighboring objects. The pupa is not suspended by the tail, as in butterflies, but is supported on the cross-threads in a position more or less horizontal. The head-case of the pupa is narrowly elongated and pointed, the process thus formed being three-sided. It tapers regularly from the thorax to the abdominal extremity, but on the back of the abdomen-case, which is somewhat flattened, there are three ridges, one in the middle and one on each side. Color, blackish-brown; varied on the dorsum of the abdomen-case, with grayish along the edges of the ridges, and with greenish between them.

The first imago, taken in the pupa state on the 9th of October, appeared on the 21st inst. The imago rests in the position of a *Tischeria*, that is, with the fore legs applied to the breast, the front part of the body elevated, and the ends of the wings touching the surface on which the imago may be standing. It is rather sluggish in its habits. The fall brood doubtless hibernates until the following spring.

The affinities of this little insect are very interesting. In early life its mode of mining indicates a relationship to the genus *Nepticula*. Its subsequent habits recalls those of the genera *Tischeria* and *Butalis*. The larva resembles the false loopers of the *Noctuina*, and its mode of transformation closely approaches the pupation of the *Rhopaloceros* larvæ, the *Pterophorina*, and that of the genus *Elachista*. In the imago, the folded fore legs, the position at rest and the tufted front, show strong affinities towards the genus *Tischeria*, and its wing structure places it in the lithocollitiform group of the *Tineina* to which the former genus belongs.

The collector, in searching for the larvæ of this insect, should look amongst the leaves that are most shaded, for these are preferred to those exposed to the sun. After having found a plant inhabited by them, he

can either secure them and rear them in breeding-vessels, or wait until the period of pupation, and secure the pupæ without the trouble of attending to the feeding of the larvæ.

#### NEPTICULA MINERS OF THE SYCAMORE LEAF.

I ascertained, during the fall of 1861, that there is more than one species of *Nepticula* that mines the leaf of the Sycamore tree, and that all of them are double brooded. The first brood may be taken early in June and July, and the second during the latter part of September and early in October.

The mine and larva of one species is described in the November and December number of the present work for 1861, page 83, and the imago in the January and February number for 1862, page 133; but it may be well to repeat here, for the purpose of comparison, a more circumstantial description of the mine of the species to which allusion is made.

The mine of *Nepticula Plantanella* begins as a very slender track, *the entire length of which is filled with frass*. This is very soon expanded into a round, conspicuous, blister-like blotch on the upper surface of the leaves, which sometimes obliterates the early portion of the mine; but in this event it is still perceptible on the separated epidermis as a slender, dark brown line. After the blotch has been formed, the "frass" is diffused over the floor of the mine, discoloring its surface.

*Sycamore miner*, No. 2, mines in quite a straight line, when its course is along a vein of the leaf, otherwise it is slightly winding. The mine begins as an extremely minute tract, and is gradually enlarged towards the extremity. A day or two before leaving its mine the larva *enlarges the end into a small blotch*, which has attached to it a long linear track, *with a central line of blackish frass*. In the enlarged portion of the mine the frass-line changes into one of scattered and separated grains.

The larva is of a lively or bright green color, with a dark green central line of intestinal matters. Head, pale brownish. The body tapers somewhat from the thoracic wings. The larva was not taken from the mine for description.

The imago of this species is undescribed, and although I secured cocoons last fall, which may produce imagos in the spring, I shall be glad if some new observer rears imagos in the coming summer, and records a description of them.

*Sycamore miner*, No. 3, mines, at first, in a very narrow, transparent track, *having a blackish central line of frass*; the tract being usually much contorted. At this stage of its larval life, which is its earliest period, the miner can scarcely be detected by the naked eye. Three or

four days before pupation, the larva begins to enlarge the linear mine into a blotch. This enlargement takes place most often over the course of the old linear mine, *the latter half of which furnishes the basis of the blotch*, and hence leaves within it a blackish frass-line. The edges of the blotch are irregular; in the mine of *Plantanella* the blotch is circular, or nearly so, and the early portion of the mine is filled with frass, while the blotch is formed by dilating the linear tract, after it becomes five or six lines long.

The larva, when young, is transparent; color, white, tinged with greenish, with the thoracic segments swollen, giving it a fusiform appearance. Subsequently it becomes of a pale green color, retaining, however, the swollen thoracic rings.

In order to insure success in rearing these minute larvæ, one must be careful that an excess of moisture does not condense on the sides of the vessels in which the leaves containing them are kept. When the larvæ are full fed they abandon their mines in order to weave their cocoons, and if there is much moisture on the sides of the vessel, the larvæ will be drowned in it as they endeavor to ascend its sides. When this happens, or when the larvæ are disabled by a few hours' submersion in this moisture, the observer is not only discouraged, but his care and attention are lost.

This accident has happened to me very often. In order to avoid it, I have found that if the layer of moist sand is covered with a layer of damp earth an inch or two thick, and packed rather firmly, that the moisture does not collect on the sides of the vessel to such a degree as to endanger the lives of the larvæ. Indeed its accumulation may be prevented entirely, provided the sand is not too wet. The earth should not be wetted, and its degree of dampness should be that which is natural to the soil in summer. If the cover of the breeding-vessel fits accurately, the leaves may be laid simply on the surface of the earth, and they will keep fresh for quite a long time.

The cocoons are not as easily detected by the eye, however, on the brown earth, as they are on the surface of white sand. But if the surface of the earth is smoothed with the fingers, so as to leave no fissures or cracks in it, the larvæ will nearly always weave on the sides of the glass where they meet the surface of the earth.

The Sycamore miners often weave their cocoons within their mines, when the air within the vessel is too humid. Previously to weaving they carefully cut the epidermis, some distance on each side of the point at which the cocoonet is to be placed, and thus secure their exit as imagoes. According to my observation, this never takes place in nature. And yet, great numbers of the larvæ that mine leaves overhanging a stream of water

—for the Sycamore usually stands along the margins of streams—must be drowned after abandoning their mines.

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Characters of the larvae of MYCETOPHILIDÆ.

BY BARON E. OSTEN SACKEN.

(PLATE 2.)

A considerable amount of information on the earlier stages of existence of Diptera is scattered through the entomological publications. Only a few years ago, Mr. Haliday prepared a list of nearly all the references on this subject. (*List of the genera and species of the British Diptera, the earlier stages of which are more or less perfectly known, with references to the principal authorities*, in the Natural History Review, p. 180.) The next step, after a publication of this kind, is to digest the materials thus collected, and to reduce to a more compact form the information contained in them. But this being done, one becomes very soon aware that the increase of knowledge thus obtained is rather insignificant, that a vast number of references add but very little to the facts, and that a real advance can be obtained only by fresh investigation. The knowledge of larval forms, due to former observers, does not, in most cases, supply us the knowledge of the characters of these forms. The desideratum of dipterology in its present state is to establish the natural character of each family in its larval form, as well as the natural character of at least the principal genera within each family, during the same stage of existence.

An attempt of this kind on the family of *Mycetophilidæ* is offered in this paper. It contains: 1st.—A comparative description of the external anatomy of the principal genera in their larval form. 2d.—A brief account of what is known about the habits of each genus. 3d.—A list of references, with a short notice on the importance of each.

It will be observed that the description of the transformations of *Mycetobia pallipes*, usually considered as belonging to the *Mycetophilidæ*, has been omitted. The earlier stages of this insect, as observed and described in perfect agreement by Lyonnet, Dufour and Guérin, are totally at variance with those of the other genera of the family, the larva being amphipneustic, and the pupa having spines round the abdominal segments, like those of the *Tipulidæ*. Both resemble most strikingly the larva and pupa *Rhyphus*. I have deemed it better, therefore, to exclude this genus from the family until further research indicates its true location.

The principal descriptions of the larvae of *Mycetophilidæ* have been given by Dufour, Bouché and Heeger.

Leon Dufour,\* in his paper on the metamorphoses of fungivorous larvæ, made the first and only attempt at a generalization of the characters belonging to the different genera of the family. He divides these larvæ in *antennatæ* (*Bolitophila*) and *non-antennatæ*; the latter are subdivided in *oculatæ* (*Mycetophila*, *Cordyla*) and *non-oculatæ* (*Sciara*). But it will be shown below that the antennæ may be considered as always extant, although frequently in a rudimentary state. It is difficult to say what Dufour took for the *ocelli*; if it was the pair of small, pellucid, convex spots, which may be perceived below the antennæ, he was correct in stating that they are absent in *Sciara*; but how did he not perceive them in *Bolitophila*? ("Mes investigations les plus répétées, says he, ne m'ont fait reconnoître dans les antennes, aucune trace d'yeux.") As to the trophi, their description is very imperfect; the author *indistinctly* perceived a pair of serrated mandibles, but did not discover any maxillæ nor palpi. He gives, however, very valuable observations on the internal anatomy of these larvæ.

*Bouché* has described several larvæ of *Mycetophila* and *Sciara*, but, besides giving an idea of their general appearance, these descriptions have little value. The statements about the trophi are very imperfect; the figures appended to them are incorrect. (Thus the mandible of *Myc. signata*, Tab. III., f. 7, or the head and mandibles of *Sciara*, Tab. III., f. 11, are altogether imaginary.)

*Heeger*, likewise, has published observations on a *Sciara* and a *Mycetophila*. The paper on *Sciara* contains the only correct description and figures of the trophi of any larva of this family hitherto given. In the article on *Mycetophila*, on the contrary, Heeger has committed a most singular error, in taking the back of the larva for its venter, and vice-versa. The trophi are not mentioned at all.

In the sequel I have attempted to establish the general characters of the larvæ of this family, and to show at the same time the modifications which these characters incur in the principal genera. My statements are principally based upon my own observations on the larvæ of *Mycetophila signata* (or a closely allied species), of *Bolitophila cinerea* M., *Sciophila linbatella* Zett, and several species of *Sciara*, all of which I have reared. I had, moreover, a larva found under the bark of a tree in Virginia, and which I have some reason to suppose to be that of *Leju*.

It is on the examination of these larvæ, supported by scattered statements found in previous authors, that I have tried to define the characters of this family and of the genera. These characters may, and probably

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\* All the quotations have to be looked for in the *References*, at the end of this paper.

will, be modified by future research; but the only way to arrive at their *improvement*, is to establish a basis to start from.

# I. LARVA.

The general characters of the larvæ of *Mycetophilidæ*, known to me, may be set down thus :—

*A distinct horny head; a fleshy labrum, encased in a horny frame; horny, flat, lamelliform mandibles, indented on the inside; maxillæ with a large coriaceous inner lobe, and a horny outside piece, with a circular excision at the tip; labium horny, small, almost rudimentary; body fleshy, with eight pairs of stigmata.*

I. The head consists of a more or less strong horny shell; it is strongest in *Bolitophila* and softest in *Sciophila*; it is open anteriorly and posteriorly, the anterior opening containing the *trophi*, the posterior one forming the connection with the first thoracic segment.

Viewed from above, the heads of the larvæ show the following differences: 1st.—In the form, which is sometimes cordiform (fig. 2, *Myc. signata*); sometimes almost square (fig. 4, *Sciara*); or broad and rounded (fig. 9, *Bolitophila*). The head of *Sciophila*, as well as that of the larva which I suppose to belong to *Leja*, are more elongated than the others (figs. 6 and 7). 2d.—In the outline of the posterior (occipital) margin; in *Mycetophila* and *Sciara*, it is more or less emarginated in the middle (figs. 2 and 4, *t.*); the same is the case with the four larvæ of *Mycetophila* and with *Cordyla crassipalpa*, and *Sciara ingenua*, all described by Dufour; this emargination is sometimes in the middle of a produced lobe (fig. 10, *a.*), or of a lobe formed by two lateral emarginations, although not produced beyond the lateral parts of this margin (fig. 10, *b.*); sometimes the lobe is hardly perceptible (fig. 10, *c.*); in some larvæ, as, for instance, that of *Myc. signata*, there is a distinct notch on each side of the lobe (fig. 2, *g.*), formed by a fold of the horny substance. In *Bolitophila* (fig. 9) and *Sciophila* (fig. 6) the posterior margin is not, or is almost imperceptibly emarginated and not produced. 3d.—The direction of the *occipital lines*, two slender, pellucid lines, beginning at the interval between the mouth and the antenna and running towards the posterior margin. They converge towards the middle of this margin in *Mycet. signata*, *Sciophila limbatella* and in all *Sciarae* which came under my examination; sometimes they are nearly straight (fig. 2 and 6, *f.*), sometimes undulated and angular (fig. 4, *f.*). They are not convergent, and reach the posterior margin at two distant points in *Bolitophila* (fig. 16).

Viewed from beneath, the horny shell of the head also shows some



differences of structure: a. In *Sciara* and *Mycetophila signata* its anterior and posterior openings are almost connected, or separated only by narrow, horny stripes; in some *Sciarae*, for instance, there are two such stripes (fig. 3); in other but one (they seem to break off easily, at least in specimens preserved in spirits); b. In *Sciophila* (fig. 7, *t'*) and the supposed larva of *Leja*, (fig. 8, *t'*) the anterior and posterior openings are separated by a broad portion of the shell; a distinct longitudinal suture in the middle of this interval, indicates the soldering together of the two edges of the shell. As to *Bolitophila*, among my five specimens of its larva, one has the edges of the shell connected, in the others this connection was broken, as was evident from the irregular outline of the margins.

Viewed in front (in the direction of the axis of the body) the head generally shows the following openings in the horny shell, easily perceivable on account of their paler color: in *Mycetophila* (fig. 12) a sub-triangular spot in the middle (*d*), which is the fleshy part of the upper lip; a round spot on each side, (rudimentary antenna, fig. 12*a*); a second, more oblong and irregular spot below (the interval between the root of the mandible and the edge of the horny shell, fig. 12*k*\*; fig. 11, the interval between *r* and *s*), and a third smaller spot (*m*) which is the ocellus; the three slits on the lower part of the head (*n*\*) are the intervals between the maxillæ. *Sciophila* has the same pellucid spots; but those marked *a* and *k*\* on the plate are oblong, and the spot (ocellus?) *m* is black, opaque. *Sciara* is in this respect like *Mycetophila*, only the spot *m* (ocellus) is either black, opaque or wanting. In *Bolitophila* the spot *d* (labrum) is much smaller, *a* (*antennæ*), on the contrary, larger.\*

The organs connected with the head, and which I have to describe now, are the *antennæ*, the *ocelli* and the parts of the mouth (*trophæ*).

A. *Antennæ*. A pair of round openings in the horny shell of the head, one on each side of the mouth, are the places of insertion of the *antennæ*. In *Mycetophila* they seem to be generally rudimentary, mere soft, fleshy swellings projecting through a round hole (figs. 1 and 2, *a*); still, the larva of *Myc. nigra* has, according to Bouché, distinct, stout, conical two-jointed *antennæ*, and *Cordyla crassipalpa* (according to Dufour) likewise, although short ones. *Sciara* (fig. 4, *a*) and *Sciophila* (fig. 6, *a*) have, like *Mycetophila*, rudimentary *antennæ*. In *Bolitophila* they reach the greatest development, being distinctly jointed. They consist of a

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\* I deemed it useful to notice these paler spots on the dark ground of the head, as former authors have mentioned them, without explaining their meaning. Perris, for instance, has figured the head of *Sciophila* viewed in the direction of the axis of the body.

stout, whitish, fleshy basal joint, divided in two by a horny ring; second joint cylindrical, horny; third joint much shorter (it bears a bristle, according to Dufour; my specimens, preserved for years in spirits, may have lost it.) However, even the rudimentary antennæ of the other genera, when viewed from above, show on the fleshy tubercle an indistinct circle or ring, probably the indication of a joint.

B. *Ocelli*. *Bolitophila* and *Mycetophila* (*m* in figs. 1, 11 and 12) show on each side, below the antenna, a small, pellucid, convex spot, which may be an ocellus, and has been taken for one by Dufour. The other larvæ have either no such spots at all, or opaque, black spots in their stead.

C. *Trophi*. The trophi of the larvæ of the *Mycetophilidæ* consist of all the parts forming the normal type of the insect mouth: the *labrum*, a pair of horny *mandibles*, a pair of *maxillæ*, and a *labium*.

1. *Labrum*. It is a fleshy piece, encased in a kind of horny frame, which is fastened to the epistoma and interrupted anteriorly. Fig. 13 represents the labrum of *Mycetophila signata*; *d* is the fleshy part, *c* the horny frame, the inner margin of which is fringed on the inside, towards the tip, with a row of very minute, stiff bristles. The labrum of the other genera has precisely the same structure; it is somewhat smaller in *Bolitophila* (fig. 9, *d*); in *Sciophila*, and in the larva which I take to be *Leja*, the epistoma shows a distinct depression in the middle. In all these larvæ the labrum occupies a considerable portion of the upper part of the mouth, its tip, in repose, resting between the inner sides of the maxillæ (see *d*, in figs. 1-4, 6, 7, 9 and 11.) Its function seems to be, principally, to shut the oral orifice, and perhaps to press on the mandibles and maxillæ during the process of mastication.

2. *Mandibles*. They are horny lamels, serrated or indented on the inside, and attached at two points to the horny shell of the head, that is, to a horny projection of this shell, generally existing close by the antenna (fig. 11, *r*) and another point a little below it, so that a vacant space, already mentioned above, remains between the lower edge of the mandible and the horny shell. The mandibles are compressed between the labrum and the maxillæ, and their indented edge is more or less closely applied to the indented edge of the maxilla (*k* in figs. 1, 3, 5, 7 and 11; fig. 5 shows the position of the mandibles of *Sciara* after the removal of the maxillæ). It results from this description that, differing from the usual situation of the mandibles, here they are in a more or less oblique position towards each other. The *form* of the mandibles differs in different genera. Those of *Myr. signata* (fig. 15) have a thin, rounded, serrated inner edge and a

second row of indentations, parallel to the first, on the flat surface of the lamel, along the margin of its stronger portion (fig. 15, *q*). The mandibles of *Bolitophila* resemble the former in their outline. Those of *Sciara* are more square, and have only three or four large indentations at one end (fig. 16); those of *Sciophila* are uniformly thin, slightly concave, with several large indentations, and some minute ones in their intervals and on the surface (fig. 17).

3. *Maxillæ* (figs. 18 and 19). They consist of a triangular *cardinal piece* (*x x* in the figs. 1, 3, 7, 8 and 18) and a *stipes* composed of two distinct pieces: 1st. An inner one, which is generally connected with the cardinal piece below by a horny process (*o* in figs. 18 and 19) and ends above in a coriaceous, more or less cultriform lobe, serrated on the inside (*z*). 2d. An outside one, (*d'*) which is horny, and has near its tip a round excision (*i*) for the palpus. The cardinal piece of one side is generally separated by an interval from that on the opposite side (as in *Mycetophila*, *Sciara*, *Sciophila*; see the above quoted figures); but in the larva which I suppose to be that of *Leja*, they are remarkably large and contiguous (fig. 8, *xx*). The *serrated lobe* offers much analogy of structure in all the larvæ which came under my examination; in *Mycetophila*, its edge had 10 or 11 sharp indentations, which become smaller and indistinct towards the tip. The *Sciarae* showed only 6 or 7 such indentations, of which four were larger and less sharp than in *Mycetophila*, the other 2 or 3 were small and rounded; in *Sciophila* the serrated lobe is elongated, narrow and curved; the indentations are distinct only at the base; in *Bolitophila* (fig. 19) on the contrary, the lobe is short, rather stout, with sharp indentations. The horny process *o* is particularly developed in this genus, being strongest and showing a distinct excision immediately below the first tooth of the cultriform lobe (fig. 19). The horny outside piece of the maxilla (*d'* in figs. 18 and 19) is closely applied to the inner one (see *h*, figs. 1 and 3, showing the maxillæ of *Mycetophila* and *Sciara* in their relative position to the other parts of the head), although not soldered to it (a slight pressure between two glass plates easily separates them, as fig. 18 shows.) A small fleshy tubercle, protruding through the round opening at the tip of this piece, is evidently a rudimentary maxillary *palpus* (*i*), which I have seen developed only in *Sciophila* (fig. 7, *i*) where it is subuliform and apparently two-jointed. The round excision is unusually large in this genus. The rudimentary palpi of the other genera, show under a strong magnifying power a minute horny ring in the middle of the excision (as in fig. 18) which may be the indication of a second joint. In two *Sciarae* which I dissected, the hoop

encircling the excision is stout, so as to be somewhat tubular (this is the reason why, when isolated and compressed between two glass plates, this opening appears less pellucid than in *Mycetophila*).

The combined action of the mandibles and maxillæ is probably that of abrading the objects against which the under side of the head is applied. This may also explain the large sized upperlip, which presses these organs against the scraped surface, and the internal situation of the lower lip, which, if projecting, would interfere with the function of the other organs.

4. *Under lip*. This organ is but little developed, and I have not succeeded in elucidating its structure completely. Between the maxillæ a horny, often V-shaped piece is seen (fig. 14; *y* in figs. 8 and 7; see, also, fig. 18), the branches of which extend behind the maxillæ. Judging from the analogy of other insects, it is not improbable that this organ has some function to perform in connection with the cocoon-spinning of the larvæ. I incline to find this opinion confirmed by Dufour's description of the larva of *Ceroplatus*, where these organs seem to have more development. After having mentioned *two pairs of mandibles* (evidently meaning by the second pair the maxillæ), he describes a pair of blackish, horny tubes, slightly curved, inserted, one each side, *between the basis of both mandibles*, their tips being directed backwards. They are the organs for spinning. The only doubtful point here is the position ascribed to these organs, and which, if I understand it right, would not quite answer to that of the labium.

II. *The body* of the larvæ of *Mycetophilidæ* is subcylindrical, more or less elongated, fleshy, whitish or yellowish (in *Sciophila* and some *Sciara*) and consists of 12 segments. It is most elongated, almost serpentiform, in *Sciophila*; stouter and shorter in *Bolitophila* and *Mycetophila*. *Sciara*, in this respect, seems to hold the middle. It is smooth, without hairs or bristles, except those on the ventral side. Generally it is very transparent, showing distinctly the intestinal canal and the tracheæ. It has *eight* pairs of stigmata,\* one on the first thoracic and seven on the first seven abdominal segments, the two last ones having none. These stigmata are small, horny, nipple-shaped projections; those of *Sciophila* are the smallest. (At least they were so in the species I reared; judging, however, from Dufour's description and figures of the larvæ of *Sc. striata*, it seems that the stigmata were much larger and projecting in that spe-

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\* Bouché attributes nine pairs of stigmata to the larvæ of *Myc. nigra* and to those of the three *Sciara* which he reared; Heeger, the same number to *Myc. lunata*. I believe these statements to be erroneous, as all the larvæ of *Mycetophila* and *Sciara* which I saw, and likewise those described by Dufour, had *eight* pairs.

cies; the thoracic pair was bifid.) The locomotive organs consist of more or less apparent transverse swellings on the under side of the ventral segments, sometimes furnished with minute bristles or spines. The latter are frequently arranged (especially in *Mycetophila*) in two transverse, parallel rows on each of eight or ten segments; in *Bolitophila*, if sufficiently magnified, they appear to consist of a multitude of short bristles, arranged in lines, and forming a transverse band. The arrangement of these bristles seems to vary in different species, and has been used by Dufour as a specific character in the description of the larvæ of several *Mycetophilæ*. *Myc. modesta* Dufour, according to this author, had no such bristles; likewise the locomotive swellings of all the *Sciara* which I have examined, had none; however, *Sciara ingenua* Duf. had them, according to the same author. The larva of *Sciophila* which I reared was furnished with them, but they were exceedingly minute; they were placed on the ventral side of eight abdominal segments; all rows being double, except the first, which seemed simple; the 8th or last, was almost obsolete. The last abdominal segment of the larvæ is generally simple, but often, as in some larvæ of *Mycetophila*, more or less bilobed.

The larva of *Ceroplatus*, judging from the descriptions of Reaumur, Bosc and Dufour, has a very different structure of the body. Its four anterior segments only are distinctly separated, the incisures of the others being concealed by numerous transverse wrinkles, which give this larva the appearance of a leech (see fig. 20). No stigmata was perceptible.

## II. PUPA.

The pupæ of the *Mycetophilidæ* are *extricated*; that is, not encased in the contracted skin of the larva. The legs are applied to the breast and venter; the antennæ bent round the eyes, and their remaining portion applied to the breast between the wings and the legs. In *Sciara* their basis is frequently expanded into a tooth. The prothoracic stigma is placed on a small protuberance a little above the root of the wing, immediately behind the antenna. In some *Sciara*, this protuberance is extended into the shape of a pointed horn, the direction of which is parallel to that of the longitudinal axis of the body (fig. 22); an air-tube may be distinctly seen entering this horn. The abdominal stigma are distinct on both sides of the abdomen, in the shape of small, brownish, nipple-shaped projections.

These pupæ are smooth, the margins and angles of the body are rounded, and not sharp or pointed, like those of the pupæ of *Tipulidæ*, for instance. The only exceptions I met with are those mentioned: the prothoracic horns in some species of *Sciara*, and the double point on the top of the

head, due to the tooth-like expansion at the bases of the antennæ. In this respect, these pupæ have a close resemblance to those of some *Cecidomyiæ*—a resemblance which has already been noticed before. (See Loew, Stett. Entom. Zeit., 1842.) Not all the species of *Sciara*, however, have pupæ of such a structure.

The pupæ of *Mycetophila* and *Sciophila* are enclosed in a cocoon, of more or less density in different species.\* Exceptions may occur, however, as for instance is the case with *Mycet. inermis* Dufour, which, according to this author, has apparently no cocoon, but, as he suggests himself, it may have been so delicate as to have been destroyed by the observer in the attempt to extricate the pupæ from among the remains of the fungus in which they were concealed. *Sciara* in some species spins, in others, does not spin cocoons. An earthy case sometimes replaces it (as in *Sc. fuscipes* Meig., observed by Heeger). The pupæ of *Sciara toxoneura* O. S. (fig. 22), were enclosed in small hollows just below the surface of the cow-dung in which I found them. *Bolitophila*, according to Dufour, has no cocoon (although I have reared the same insect, I find no notice about its pupa in my papers). *Ceroplatus* and *Cordyla* spin cocoons (Dufour).

### III. Remarks on the Habits of the MYCETOPHILIDÆ.

All the larvæ are gregarious, and live in decaying vegetable matters. *Mycetophila* and *Sciophila* seem to prefer fungi and other fungoid growths, as all the known larvæ have been observed in such situations. *Sciara*, on the contrary, is found among decaying leaves, in vegetable mould, in cow-dung, under the bark of dead trees, etc. (One species even forms a gall, as will be mentioned below.) That these larvæ shed their skins several times before transforming into the pupa state, seems to be beyond doubt, although I have never had occasion to observe it myself. Heeger asserts it with the precision of an eye-witness about the larva of *Sciara fuscipes*.

#### MYCETOPHILA.

Heeger gives the following account of the habits of *Myr. lunata*:—

“They hibernate mostly as perfect insects or as pupæ; seldom as larvæ; they appear in the spring and copulate after a few days, generally in the evening. After 6 days, or 10, if the weather is moist and rainy, the female lays its eggs on the fungi growing on old horse-

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\* The pupa of *Sciophila striata* Meig., reared by Dufour, had no cocoon.

"chestnuts, singly, 20 or 30 on the same fungus. Before depositing them, she generally walks along the root of the fungus, in order to find the proper location for them. The larvæ appear after 8 or 10 days, and begin to burrow in the underside of the pileus; they shed their skin three times, and transform near the outer margin; the pupa state lasts from 9 to 12 days, after which the fly comes out, generally in the morning; it begins to move about to take its first food only towards the evening.

"The eggs are one fifth of a line long, cylindrical, white."

The larvæ of this genus are generally whitish, rather stout. The horny head is more or less brown.

*Myc. signata* Meig. (? or a closely allied species), which I have reared, also spun its cocoon without leaving the fungus. In order to ascertain the relative proportion of the sexes in the perfect insect, of which I had obtained a large number, I examined a *hundred* specimens and found 51 males and 49 females. The cocoon was truncated at one end, and this truncature covered with a delicate web, which the fly breaks through in escaping. In this, as in all other respects, Dufour's statements about *M. hilaris* Duf. (syn. *M. arcuata* Meig?), a species closely allied to *M. signata*, agree exactly with mine.

A very curious larva of the same genus has been observed by Perris (*Myc. scatophora* Perris). It carries on its back a sheath formed of its own excrements, and moulded by means of a peculiar undulatory motion the skin. The larva is more stout and convex than the other larvæ of the genus, otherwise it agrees with them. The pupæ remain within the sheath, but before assuming this state the larva extends the sheath anteriorly in a short neck, and tapestries it on the inside with a pellicule, which renders it more tough and resisting. Larvæ and pupæ were found on a meadow, under an old plank, the under side of which was overgrown with byssus.

Bremi observed a similar larva, but referred it to *Sciophila*. The probable origin of this error will be explained below.

#### CORDYLA.

The larva of *C. crassipalpa* Dufour, observed by this author in a fungus, seems to agree in every respect with the larva of *Mycetophila*.

#### BOLITOPHILA.

The habits of this genus seem to be like those of *Mycetophila*. The larva spins a cocoon, which remains on the surface of the ground or

among the fragments of the decayed fungus. Dufour's observations agree with mine. Guérin, as will be shown below, mistook for *Bolitophila* quite a different larva.

#### SCIOPHILA.

The larvæ of this genus are easily distinguished from those of *Mycetophila* by their more elongated form and their mode of life, as they do not burrow inside of the fungi, but live on the surface, generally on the side of the pileus, which they cover with a web.

Some of them are found on decaying wood, especially when it is covered with *byssus*.

Degeer was the first observer of these larvæ; Dufour and Perris came next. At present the transformations of *Sciophilæ* of all the three divisions of Meigen (A, B, C) are known, and all seem to share the same habits. Perris reared *Sc. unimaculata* Macq. (Div. B, Meig.); the same author, as well as L. Dufour, reared *Sc. striata* Meig. (Div. A), and I obtained in the same way *Sc. limbatella* Zett. (or a closely allied species of the same division C Meig.). The concurrence of these observations makes me believe that the statement of Van Roser, who found the larva of *S. marginata* Megerl. in an agaricus, and described it as being "exactly like that of *Mycetophila*," must be founded on a mistake; it will be shown below that larvæ of both genera frequently dwell together in the same fungus. The following is an account of my own observations on *Sciophila* :—

I had brought home (in St. Petersburg, Russia, in Sept., 1855) larvæ of *Mycetophila*, which I succeeded in raising. Not less than 120 specimens came out. What remained of the agarici, after this, was a putrid, shapeless, semi-fluid mass, spread over the earth laying at the bottom of the box in which the experiment was made. On these remains I soon noticed minute larvæ, diligently engaged in spinning; they grew rapidly, and in five days were almost full-grown. During this time they had spun over with a delicate web the whole surface of the putrid mass, especially the hollows and inequalities in it. Each larva had its own district, where it continued working under cover of the already completed tent. The latter consisted of a dense upper stratum, under which hung, like so many suspension-bridges, the tracks of the single larvæ. On these tracks, marked by a slimy substance, the larvæ glided rapidly, like on a rail, forwards and backwards. When disturbed, they immediately backed and disappeared in their hollows. Sometimes they turned round without leaving the track, by doubling the body and sliding the head towards



the anus. A short time before transforming, the larvæ left their webs and crawled away in different directions. Their slimy tracks remained visible on the ground even when dry. The pupæ were located in the corners of the box, and protected by a dense web, consisting of several layers; the first enclosed the pupa, the others connected both sides of the corners. The pupa-state lasted only a few days, and the imago was excluded fourteen days after I had first noticed the larvæ. The males appeared first, soon afterwards the females. (Dufour's larva did not spin a cocoon.)

It is curious that the larvæ of *Sciophila* appeared only after the transformation of the *Mycetophilæ* was entirely completed; for two or three weeks the eggs of the former remained apparently dormant among the bustle of so numerous larvæ of the other species. This association of the two insects seems to be of frequent occurrence. L. Dufour obtained *Sciophila melanocephala* n. sp., together with *Mycetophila hilaris* n. sp., from *Fistulina hepatica*. Perris found larvæ of *Sciophila* together with the remarkable larva of *Myc. scatophora*, and if Bremi mistook the latter larva for that of *Sciophila*, his error had very probably the same foundation as that of Mr. Van Roser,—the promiscuity of the two larvæ.

The larva of *S. limbatella* is about half an inch long, very narrow, snake-like, pellucid, yellowish, with some slightly darker spots; the head is yellowish, the margin of its excision brownish. The details of its structure have already been given. It is strange that neither Dufour nor Perris mention the palpi of these larvæ. The latter says explicitly: "no antennæ, no palpi, no mandibles." Likewise, Perris did not discern any organs of locomotion; "not the slightest bristle, nor hair."

#### LEJA.

The habits of these larvæ, as far as known, are similar to those of *Sciophila*. Van Roser (Verg. Würt. Dipt.) says of *Leja fasciola* Meig., "the transparent, smooth and slimy larva lives in delicate webs on the surface of tree-fungi."

In September, 1860, I found (in Virginia) under the bark of a felled and decaying tree, a full-grown, white larva, living on a similar web, and which may be a *Leja*, as several specimens of the perfect insect of this genus were concealed under the same bark, in the vicinity of the larvæ. Some peculiarities in the structure of the trophi of these larvæ have been noticed above.

## CEROPLATUS.

Reaumur's, Bosc's, Dufour's, and Wahlberg's observations on these larvæ, prove that their habits have much analogy with those of the two preceding genera. They live on the underside of the pileus of tree-fungi, where they spin a transparent tent. The larva leaves this tent before transforming, and spins a cocoon for the pupa somewhere in the vicinity. The cocoon, like that of many *Mycetophilidæ*, is truncate at one end, and, according to Wahlberg, closed with a lid.

Dufour, in speaking of the larva, mentions a pair of large *eyes*. What he took for them was probably nothing but the rudimentary antennæ, like those of *Mycetophila* and *Sciara*, already described. In all respects, the structure of the mouth seems to be like that of the other larvæ of the family, except two tubes, used for spinning, and inserted one on each side, between the root of the mandibles and the maxillæ (see above, *Underlip*). An interesting observation is that of Wahlberg, on the phosphorescence of the larvæ, and, in a still higher degree, of the pupa; the latter shine through the cocoon as through a lantern.

As Bosc's observation was made on an American species, *Ceroplatus carbonarius* Bosc, from Carolina, we may reproduce here what he says about it (extracted from the article *Ceroplatus* in *Dict. classique d'histoire naturelle*, Vol. III., p. 403. 1823.) "This larva is vermiform "white, slimy, with a black head, distinct segments,\* and tuberculiform "organs of progression. It lives on a species of *Boletus*, very like *B. unicolor* Bulliard, and is gregarious. It appears in June, and completes "its growth in August; then it is about  $2\frac{1}{2}$  inches long, and about  $\frac{1}{4}$  of "an inch in diameter. During the whole period of this growth, but especially towards its close, these larvæ spin in common a loose web of a "shining white, in the tissue of which they abscond when disturbed. "They are so delicate that a mere touch crushes them. When left dry, "they soon perish. About the time of their transformation they spin a "cocoon, which is more dense than their web, although loose enough to "allow the pupa to be seen through it."

## SCIARA.

The localities where the larvæ are found are indicated above, and some more statements will be found below, under the head of the references. They are whitish, sometimes yellowish and more slender, and their skin is

\* The statement of *distinct segments* does not seem to agree with Dufour's description and figure of the leech-like appearance of the larva.

more delicate than that of the larvæ of *Mycetophila*, whom they otherwise resemble. They may be further distinguished by the structure of the trophi, and most of them seem to have no bristles or spines on the locomotive processes on the under side of the body, whereas the majority of the *Mycetophilæ* have them. They are even more gregarious than the other larvæ of this family, and have the singular propensity of sticking together in dense patches, in which situation they are frequently found, for instance, under the bark of trees. It is probably to the same propensity that the phenomenon, known in Germany under the name of *army worm* (Heer-wurm), is due. This is a procession of larvæ, sometimes from 12 to 14 feet long, and two or three inches broad, consisting of numberless specimens, sticking closely together and forming a layer of about half an inch thickness. Such processions have been often observed in woods in Germany, Sweden and Russia, but never sufficiently investigated to explain their object. That the larvæ do not migrate in search of food, we can infer from the fact that they appear to be full-grown when they form these processions. (I have not seen the last pamphlet on this subject, by Mr. Hohmann, published in 1857. I believe, however, that it contains nothing new, as Dr. Gerstäcker, in his Annual Report on the Progress of Entomology, for 1858, merely mentions its publication, without giving any extract.)

Another remarkable fact with relation to the habits of *Sciara*, has been discovered by Mr. Winnertz, and published afterwards by Mr. Loew. The larva of *Sc. tilicola* Lw., produces a *gall* on the leaves of young linden trees, in shady, sheltered situations. The lemon-yellow larva, capable of leaping, like the cheese-maggot, lives in numbers in the stem, generally near the origin of the last or of the two last leaves. Each of them has a hollow of its own, and produces a swelling of the size of a pea, which it abandons before the transformation.

The following additional account is given on the habits of *Sciara fus-cipes* Meig., by Heeger:—"The females lay there eggs in decaying fungi or vegetable mould; the eggs form short strings, from 6 to 10 in succession. If the weather is favorable and the temperature moderate, the larvæ are excluded in 8 or 10 days; they shed their skin three times, at irregular intervals, depending on conditions of heat and moisture. Before undergoing the pupa-state they form near the surface of the soil a little barrel-shaped case, out of which the pupa extricates itself in part, before the exclusion of the perfect insect."

"The shedding of the skin and the transformations generally take place in the morning; the copulation more frequently in the evening."

We have mentioned already, that the pupa of *Sciara* is sometimes enclosed in a cocoon, sometimes not, and that, in some species, the bases of the antennæ are expanded into a pair of pointed teeth, and the prothoracic stigmata assume the shape of horns.\*

About the habits of *Platyra*, *Asindulum*, *Plesiastina* and some other genera, see *References* at the end. Nothing is as yet known about the structure of their larvæ; and it is not at all impossible that some of them belong, like those of *Mycetobia* (see page 1), to a totally different type of organization.

\* I may be allowed to describe here a remarkable *Sciara*, distinguished from the other species of the family by the form of the fork on the wings, and which I reared from larvæ and pupæ found in dry cow-dung, near Washington, in April, 1861.

*Sciara toxeneura* n. sp.—Nigra, antennis, ore, palpisque nigris, thorace nigro, polito, coxis anticis flavescentibus; alis ♂ subhyalinis, ♀ nigrescentibus; ramo superiore furcæ alarum valde arcuato, ventricoso; long. 0.12—0.15.

Head, mouth and palpi black; antennæ black, covered with a short, dense pubescence; no verticils, nor any longer hairs; joints cylindrical, connected by very short pedicels; front, vertex and thorax black, shining; pleuræ velvety black; halteres blackish; feet pale, with a blackish tinge; a darker spot on the knees; tarsi also darker; coxæ pale or yellowish, basis black; tibiæ with a pair of short, yellow-spurs at tip; abdomen black; the connecting skin between the segments, when distended, especially on the last segment of the female, yellow; wings (♂) almost hyaline, (♀) tinged with inky black, hyaline at base; the anterior branch of the fork, being very arcuated at the basis, forms a knee; its latter half is straight; posterior branch only slightly curved; cross-vein, connecting the first and second longitudinal veins is a little anterior to the middle of the distance between the tip of the first longitudinal vein and the origin of the petiole of the fork.

This species somewhat resembles *Zygoneura* by the form of the fork, but is distinct on account of the structure of its antennæ.

*Larva.* Head black, hind margin somewhat produced and emargined in the middle; occipital lines convergent (very faint); on the under side it has two horny stripes, connecting the edges of the horny shell; body white, anal segment somewhat coarctate in the middle.

*Pupa* yellowish; head, thorax and wings become blackish before the exclusion of the perfect insect; basis of the antennæ and thoracic spiracles as mentioned above (see figure 22).

## REFERENCES.\*

## MYCETOPHILA.

DUFOUR, (LÉON). Mémoire sur les métamorphoses de plusieurs larves fungivores, appartenant à des diptères. (Annales des Sciences Naturelles, 2e série, Vol. XII, 1839, pp. 5—60; tab. I—III.) Second Mémoire (l. c. Vol. XIII, 1840, page 148—163; tab. III.) This is an elaborate and most important paper on the natural history and anatomy not only of the larvæ of *Mycetophilidæ*, but also of other families of fungivorous diptera, illustrated by numerous figures. Besides a general introduction, the part of which referring to *Mycetophilidæ* has been reviewed above, the following species of this family are mentioned:—

*Mycetophila amabilis* Duf. (Syn. *M. praeusta* Meig?), *M. hilaris* Duf. (syn. *M. arcuata* Meig?), *M. modesta* Duf. (related to *M. brunnea* Macq.) *M. inermis* Duf., *Cordyla crassipalpa* Macq., *Sciara ingenua* Duf., *Bolitophila fuscus* Meig. (under the name of *Macrocera hybrida* Meig.). Larvæ and pupæ of all these species are described, and a part of them figured.

BOUCHÉ, Naturgeschichte der Insecten, Berlin, 1834, p. 37, sqq. *M. signata* (Tab. III, figs. 5—9, l. p. and details); *M. nigra*. Descriptions short; that of the structure of the mouth of the larvæ is not correct.

HEEGER (ERNST), Beiträge zur Naturgeschichte der Insecten, in the Sitzungsber. d. Wien. Acad., Vol. VII, 1851, p. 394. Tab. XI, (l. p. i.) *M. lunata* M.

This paper is a puzzle to me; it is very detailed; the figures are prepared with great care; and still statements and figures are totally at variance with what is known about other larvæ of *Mycetophila* and even about larvæ of species closely related to *M. lunata*. The stigmata are said to be nine, on nine consecutive segments of the body, except the two first; the locomotive swellings, with their bristles, are described and figured as being on the

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\* All these references have been compared, except a few marked with an asterisk; n. e. (nothing else) at the bottom of a reference, means that it contains nothing but what is stated about it; l., p., i. are larva, pupa, imago. The titles of works and papers are given in full, when mentioned for the first time: afterwards, in abbreviation.

back of the larva, etc.! It seems evident that the back has been taken for the venter, and *vice versa*.

- VAN ROSER, Verzeichniss Württembergischer Diptern. In the *Correspondenzblatt d. Würt. Landwirthsch. Vereins*, 1834. *M. hydni* n. sp. (undescribed). "The yellow larva," says the author, "lives in *Hydnum repandum*, in galleries which it spins over; its shape is different from the larvæ of the same genus." (n. e.)
- PERRIS, Notice sur quelques diptères nouveaux, *Ann. Soc. Entom. de France*, 1ère Série, Vol. VIII., 1839, p. 47. Tab. V., figs. 1-3 (p. and i.)  
*M. lycogalæ* n. sp. Pupa found in *Lycogala miniata*; larva unknown; imago described.
- " " Notes pour servir a l'histoire des métam. de diverses esp. de diptères, *Ann. Soc. Entom. de France*, 1849, p. 51. Tab. III. No. 1. (1 p. i. and details.) *M. scatophora* n. sp. (extract given above, p. 160).
- BRKMI, Beitrag z. Kunde d. Diptern insbes. über das Vorkommen mehrerer Gatt. nach besond. Localitäten und Fang derselben; auch über die Lebensweise mehrerer Larven. *Isis* 1846, p. 164. *M. lutea* and *M. lunata* obtained from *Agaricus citrinus* (n. e.).
- SCHOLZ, Über den Aufenth. d. Dipteren während ihrer ersten Stände. *Schles. Entom. Zeit.* 1819. *M. pallida* Stann. and *M. luctuosa* Meig., reared from *Boletus bulbosus*. (n. e.)
- STANNIUS, Bemerkungen über einige Arten Zweiflügl. Gattungen: *Macrocera*, *Platyura*, *Sciophila*, *Leja* und *Mycetophila*, *Isis* 1830. *M. signata* reared from *Boletus edulis*, and found especially in pine woods. (n. e. The paper contains synonymical remarks, descriptions, etc.)
- BOIE, Zur Verwandlungsgeschichte inländischer Zweiflügl. *Kröjers Tidskr.* II., p. 234, 1838. *M. signata*; a few words, only.
- DEGEER, Mémoires, Vol. VI., p. 361 [Germ. edit. p. 142], 14. Tab. XXII., figs. 1-13 (1 p. i.) The figures are good, and represent a larva with distinct antennæ; this makes me doubt whether Meigen (*Europ. Zweifl.* I. p. 266) was right in referring them to *M. fusca*. Although the figure of the perfect insect is undoubtedly a *Mycetophila*, Degeer's text shows that he could not be very certain whether it was really reared from the larva which he has figured.

**CORDYLA.**

DUFOUR, l. c. (See *Mycetophila*.)

RÉAUMUR, Mémoires pour servir à l'histoire des insectes, Vol. IV., p. 181, Tab. XIII., figs. 9-11 (l. above and below magnif., and nat. size). In the text, a few words, only. Dufour refers it here.

**BOLITOPHILA.**

GUÉRIN, Mémoire sur un insecte du genre *Bolitophila*. Annales des Sciences Naturelles, 1ère série, 1827, Vol. X., p. 399-411, Tab. XVIII., figs. 1-13 (l. p. i. and details); see, also, extract in Isis 1834, p. 926. The figure of the perfect insect, given as that of *B. cinerea*, undoubtedly belongs to this genus. As to the larva, however, some mistake must have been committed, as it cannot be the larva of *Bolitophila*. Guérin's larva had two anal stigmata, placed between four moveable lobes, and no lateral stigmata; and belonged, therefore, probably to the *Tipulidæ*. It was found in a fungus.

DUFOUR, l. c. (see *Mycetophila*) Tab. I, figs. 9-15 (l. p. and details). *Bol. fusca* is described here under the name of *Macrocera hybrida* Meig. (its old name in Meigen's earlier work).

**LEJA.**

VAN ROSER, Verg. Würt. Dipt. *Leja fasciola* Meig. (Nothing but what is given above, p. 162, under the head of *Leja*.)

**SCIOPHILA.**

DEGEER, l. c. Vol. VI., p. 367 (p. 143 Germ. edit.); Tab. 21, figs. 6-13.

Although the figures are not very good, it is evidently either *Sciophila*, as Perris contends it, or a *Leja*.

DUFOUR, Hist. des Métamorph. de *Sciophila striata*, Mém. de la Soc. de Lille, 1841, p. 201-206 (figures of l. p. and i). Agrees with my own observations, except some differences already noticed.

ID. l. c. Ann. Sc. Nat., 2e série, Vol. XII. (1839); he obtained *Sc. melanocephala* n. sp., together with a *Mycetophila*, from *Fistulina hepatica*; no other details given, as he did not know the larva.

VAN ROSER, Verz. Würtemb. Dipt. (1834) *Sciophila marginata*; nothing besides the error, corrected above (see p. 161).

- BREMI**, l. c. *Isis*, 1846. He gives a short description of sheath-bearing larvæ, which leaves no doubt of their identity with the l. of *Mycetophila scatophora* Perris; he erroneously takes them for the larvæ of a *Sciophila* which he calls *S. cellaria* n. sp.
- PERRIS**, l. c. *Ann. Soc. Entom.* 2e série, Vol. VII., 1849, p. 331, Tab. IX, No. 6 (l. and details). *Sc. unimaculata* Macq., and a few words on *Sc. striata* Meig. Some differences from my own observations have been noticed above (see p. 161).

#### CEROPLATUS.

- RÉAUMUR**, *Mémoires*, Vol. V., p. 23, Tab. IV., fig. 11–18 (l. p. i. and details). Detailed and correct account of the transformations and habits. Dufour calls the species *Ceroplatus Reaumurii* n. sp.
- DUFOUR**, *Révision et monographie de genre Ceroplatus*; *Ann. des Sc. Natur.* 2e série, Vol. XI., 1839, p. 193. Tab. V., fig. 8–25. Five species of the genus are described, and a detailed account on the transformations of one of them, *C. tipuloides* Bosc, given, with anatomical details (l. c. fig. 21–25, l. p. and details).
- BOSC**, quoted in *Dict. d'Hist. Natur.* Vol. III., 1823, p. 403, in an article of Audouin on *Ceroplatus*; a translation of the passage on *Cer. carbonarius* from Carolina has been given by me above. (See *Ceroplatus*, p. 163.) A figure of this larva is to be found in a previous (second) edition of the *Dict. d'Hist. Natur.*, Tab. B, 21, fig. 4, but I have not seen it. Bosc's article on *Cer. tipuloides*, in the *Actes de la Soc. d'Hist. Nat. de Paris*, T. I., p. 42, 1792, merely refers to the perfect insect.
- WAHLBERG**, *Acta Holm.* 1838 and 1848. The latter article is translated in the *Stett. Entom. Zeit.*, 1849, p. 120–123, under the title: *Merkwürdiger Instinct und Lichtentwicklung bei einer Schwedischen Mücken Art.* The species is *Ceropl. sesioides* Wahlb., found on *Polyporus fomentarius*. The transformation and habits are described, and an account of the phosphorescence of larvæ and pupæ given.

#### SCIARA.

- BOUCHÉ**, *Naturg.* p. 38, Tab. III., fig. 10–13 (l. p.). *Sc. vitripennis* Meig. In decayed oak twigs. Descr. of l. p.
- .. *ibid*, p. 39, Tab. III., fig. 14 (last segment of the pupa). *Sc. nitidivollis* Meig., under the bark of decaying stumps, under ground. Descr. of l. p.



- BOUCHÉ, *ibid.* p. 40, Tab. III, fig. 15 (last segm. of the pupa). *Sc. pruinosa* Bouché. In decaying vegetable matter. Descr. of l. p. i.
- " *ibid.*, p. 40. *Sc. elongata* Bouché. Under the bark of decaying pines. Descr. of l. p. i.
- DUFOUR, l. c., *Ann. Sc. natur.*, 2e série, XIIe. Vol. Tab. I., fig. 23–29 (l. p.). *Sc. ingenua* Dufour; in fungi. Descr. of l. p. i.
- HREGER, Beiträge, etc., Sitzb. d. Wien. Acad. XI., p. 27. Tab II., (l. p. and details.) *S. fuscipes* M. Under ground, among decaying vegetable matter. Detailed description of the l. p. and i., with an account of the habits. (Extract given above p. 164.)
- CURTIS, *Journ. Roy. Agric. Soc.*, X., p. 101. Tab. V. *S. quinquelineata* Macq., bred from rotten potatoes which were covered with slimy threads spun by the larva. No other details given. The plate gives an indistinct figure of l. and p.
- " *Gardener's Chronicle* for 1845, p. 784 (with figure of l. and p.). *Sciara fucata* M., (? or *S. pruinosa* Bouché). Short description; figures not remarkable.
- " *Farm-Insects: being the nat. history and economy of the insects injurious to field-crops in Gr. Britain and Ireland, 1860.* I vol. with plates. Reproduces on page 460, the remarks of the two former articles on *Sc. fucata* M. (l. p. i. figured), *Sc. quinquelineata* Macq. and *Sc. pulicaria* M?, all reared from rotten potatoes. Nothing of importance for the knowledge of the transformations.
- GIMMERTHAL, Beobachtungen über einige, in krankhaft faulenden Kartoffeln gefundene Acarier und Diptern-Larven. Arb. d. Rigaer Naturf. Ver. I., p. 325. Tab. III., fig. 3 (l. p.). *S. vittata* Meig., bred from rotten potatoes. Descript. and figures of l. and p. Nothing new. *Sc. longipes* found in the same situations.
- LOEW, *Dipt. Beiträge*, fasc. 4th, p. 18. 1850. *S. tilicola* Lw., producing a gall (see above p. 164). *S. morio* M., in the stalks of *Arctium*; no other details given.
- " *Zur Verwandlungsgesch. einiger Dipteren aus d. Abth. d. Nemoceren und üb. ihre Stellung im Systeme.* Stettiner Entom. Zeit., 1843, p. 27. Considerations on the natural affinities of *Sciara*; its pupa, compared to that of *Lasioptera*. (The figures of both pupæ belonging to this paper are to be found in the same journal for 1841, Tab. I., fig. 11–14.)
- MEIGEN, *Europ. Zweifl. I.*, p. 223, obtained *Sc. hyalipennis* from flower-pots. (n. e.)

KOLLAR (in Roesi's Dipt. Austriaca), p. 6, reared the same species from rotten potatoes. (n. e.)

(Compare, also, Kollar's work on noxious insects.)

" (quoted by Bremi, l. c. Isis, 1846), reared *Sc. Schmidbergii* Kollar, from young pears. (n. e.)

SCHILLING, Übers d. Arb. d. Schl. Naturf. Gesellsch. 1831, p. 74. *Sc. albifrons*, reared from yellow l. and p. found in the stalks of *Angelica sylvestris*. (n. e.)

DREWSSEN, *Mutilla europaea* Linn. Stett. Entom. Z., 1847, p. 210, found larvæ of *Sciara*, (which he did not succeed in rearing) in the nest of a humble bee, on which *Mutilla* was a parasite. (n. e.)

\*OLIVIER, Premier mémoire sur qlq. insectes qui attaquent les céréales 1813, fig. 7-9. Three *Sciarae* obtained from wheat.

FRISCH, Beschreibung von allerley Insecten in Deutschland, IV., p. 37. Tab. 20, (l. p.) 1722, is probably the oldest observer of the transformations of *Sciara*. The figures are rough, but certainly belong here.

The references about the *Sciara* of the *army worm* (Heerwurm), are to be found in the pamphlet: Der Heerwurm, sein Erscheinen, seine Geschichte und seine Poesie, von L. Bechstein, Nürnberg, 1851. See, also, \*Boheman Zoolog., Arsberättelse, 1845-46, p. 21-23; \*Berthold, Nachrichten d. Univers. zu Göttingen, 1854; \*Hohman, Ueber den Heerwurm, Progr. Realsch. Tilsit, 1857; \*Lorez, Vierteljahrsschr. Naturf. Gesellsch. Zurich, 1857, II., p. 88 seq.

#### Other genera of MYCETOPHILIDÆ.

DITOMYIA FASCIATA Meig. In *Boletus versicolor* Meig. I., p. 230. (n. e.)

In *Polyporus* Winnertz, Stett. Ent. Zeit., 1846, p. 15. (n. e.)

" MACROPTERA Wz. In *Polyporus igniarius* Winnertz, Stett. Entom. Zeit. 1852, p. 55. (n. e.)

PLESIASTINA BOLETI Kalt. In *Boletus versicolor* Annals of Nat. Hist., 2d series, II., p. 74, 1848.

" APICALIS Wz. Reared from a rotten trunk of *Carpinus betulus*, Winnertz. Stett. Ent. Z. 1852, p. 56. (n. e.)

PLATYURA MARGINATA Meig. In fungi, Meig., Vol. I., p. 232. (n. e.)

" LATICORNIS Meig. On a tree-fungus. Verh. Schles. Gesellsch. 1837, p. 106.

ASINDULUM FLAVUM Wz. Reared from rotten wood, Winnertz, Stett. Entom. Zeit., 1846, p. 18. (n. e.)

TETRAGONEURA HIRTA Wz. Rotten wood, fungi. Winnertz, Stett. Entom. Z. 1846. (n. e.)

## EXPLANATION OF THE PLATE.

- FIG. 1. Head of *Mycetophila signata* (larva), from below; *a*, antennæ, *d*, labrum; *m*, ocelli; *k* mandibles; *x*, cardinal pieces of maxillæ; *h*, inner, coriaceous piece of the maxilla; *i*, round excision in the external, horny piece of the same, through which protrudes the rudimentary palpus.
- FIG. 2. The same head, from above; *a* and *d* the same as in the preceding figure; *c*, horny frame of the labrum; *b*, epistoma; *t*, emargination of the occiput; *g*, notches on both sides of the occiput; *f*, occipital lines.
- FIG. 3. Head of *Sciara* (larva) from below; *k* maxillæ; *d*, *k*, *x*, as in figure 1; *t'*, horny stripes, connecting both edges of the shell of the head.
- FIG. 4. The same head from above; *a*, *d*, *c*, *t*, *g*, *f* as in figures 1 and 2.
- FIG. 5. The same head from below, the maxillæ being removed, to show the position of the mandibles *k*; *t'* as in figure 3.
- FIG. 6. Head of *Sciophila limbata* Zett. (larva); *a*, *d*, *f* as in the previous figures.
- FIG. 7. The same head from below; *i* palpi, developed in this genus; *y* labium; *t'* suture of the horny shell of the head; *d*, *k*, *x* as in figure 1.
- FIG. 8. Head of a larva analogous to the preceding, perhaps that of *Leja*, from below. *x* and *t'* as in figure 7.
- FIG. 9. Head of *Bolitophila cinerea* (larva) from above; *a*, *d*, *f* as in figures 1 and 2; *b* small pellucid spots, peculiar to these larvæ (not the ocelli, which are more on the side of the head).
- FIG. 10. Three lines, showing the different emarginations of the occipital margin of the head.
- FIG. 11. Mouth of *Mycetophila* (larva), from the side, to show the relative position of the parts; *d*, *k*, *h*, *a*, *m* as in figure 1; *r* and *s* are the two points of attachment of the mandibles.
- FIG. 12. Sketch, indicating the openings in the horny shell of the head, as well as the intervals between the trophi, which are visible when the head is viewed in the direction of the axis of the body. *d*, *a*, *m*, as in figure 1; *k\**, interval between the root of the mandible and the shell of the head; *n\**, intervals between the maxillæ.
- FIG. 13. Labrum of the larva of *Mycetophila signata*; *c*, its horny frame, ciliated on the inside at the tip; *d* fleshy portion.
- FIG. 14. Labium of one of the larvæ.
- FIG. 15. Mandible of *Mycetophila signata*; *r* and *s*, points of attachment; *g*, denticulations on the edge of the stouter part of the lamel.
- FIG. 16. Mandible of *Sciara* (larva).
- FIG. 17. " " of *Sciophila* (larva).
- FIG. 18. Maxillæ of *Sciara* (larva); *z*, cultriform, coriaceous, serrated inner lobe; *d'* horny external piece, with the excision *i*, through which protrudes the rudimentary palpus; the small horny ring upon it may be indicative of a second joint; *x*, cardinal piece; *o*, horny pieces, connecting the upper and lower parts of the maxillæ, and serving as point of attachment to the muscular fibres.
- FIG. 19. Maxillæ of *Bolitophila* (larva); *o*, *d'* and *z* as in the preceding figures.
- FIG. 20. *Ceroplastus* (larva), copy from Dufour, reduced.
- FIG. 21. *Bolitophila* (larva), magnified and natural size (indicated by a line).
- FIG. 22. Pupa of *Sciara toxoneura* O. S.

**Synopsis of Families of HETEROCKERA.**

BY BRACKENRIDGE CLEMENS, M. D.

That the following Synopsis of Families may be used to advantage, it is necessary that the fore and hind wings should be carefully denuded of their scales on both sides.

My own method of doing this, is as follows: the wings are carefully detached from the thorax and placed on a slip of glass with the surface a little moistened with common water. Then with a *sable hair pencil*, pointed and moistened by the lips, the upper surface is denuded, working with light and careful touches, in the direction in which the scales lie. When the upper surface has been denuded and the wings have dried, they can be easily detached from the glass by placing the point of the pencil under the base, or the part attached to the thorax. After the wings have been detached from the glass the denuded side is secured to it by a little moisture from the mouth, as it is slightly adhesive when dried, and the under side is then carefully denuded.

The entire surface of the wing need not be denuded; it is quite sufficient if those parts in which the modifications of structure chiefly take place are made transparent. This, however, applies principally to the fore wings; it is necessary to obtain a clear view of every portion of the hind wings, except the distribution of the nervules to the hinder margin.

When the wings are very small, they must be denuded under a lens. When large, the under side can be denuded without removal from the body.

The wings thus treated should be permitted to remain on the glass slide after the under side has been deprived of their scales, and protected from injury by a thin piece of mica or thin glass cemented to the surface by common paste or some of the cements used for making microscopic preparations. The slides may be an inch wide and two inches long, and may contain one or more specimens. In order that they may be easily distinguished, the slides should be covered with paper, leaving openings through which the wings can be seen, and the names of the family, genus and species written upon it.

The following is the method used by Mr. Guenée, which the student may prefer: "I commence by depriving the wing, on both sides, of nearly all its scales, by means of the solution of gum that is used to take impressions of them, [between two pieces of paper or tissue-paper, which are moistened with the solution of gum, I suppose, and submitted to light pressure,] and as some scales are not taken off by this treatment, espec-

ally those which cover the subcostal vein of the fore wings, I submit it several times to a separate impression, and I finish by brushing away, with the point of a pencil, all the scales that remain on it. Afterwards I place the wings, still wet, between two perfectly equal slips of glass, and secure them with a little wooden vice, [the clothes-pin which opens and closes by means of a spiral spring answers a very good purpose for this use] and bind around the slips a little band of black paper, which I turn over slightly on each end. When all is dry I remove the compressor, and obtain thus a very transparent frame, on the side of which I write the name of the species, and which presents, for study, the greatest convenience."

In order to save space, the contraction "F. w." will be used for *Fore wings*; and unless the fore wings are specified, the catagories must always be understood to refer to the hind wings.

The "secondary cell" is formed within the disk of the fore wings by a branch from the subcostal vein; it will sometimes be contracted into "2nd cell."

The "areole" is a cell formed by the branches of the subcostal vein of the fore wings.

The "disco central" nervule, is one that rises from the middle of the disk; when on the side of the median vein, it will be called "mediodiscal." To save space, the former will sometimes be simply "the disco-central."

The "intercostal cell" is formed in the hind wings by a junction between the costal and subcostal veins or a minute communicating vein, when the two are parallel in their course, called the intercostal.

For all particulars respecting the names of the veins, etc., the student is referred to a paper on the North American Sphinges, contained in the Journ. Acad. Nat. Sci., July, 1859, where the subject is illustrated by figures.

I regret that I have neither the material nor the time to enable me to give a synopsis of the genera of each of the families. The plan here adopted is perfectly applicable to this purpose; but it is scarcely the work of one who has a limited collection, and by no means an extended acquaintance with genera. For much of the information contained in the various catagories, I have been dependent on various authors, so that I fear that now and then a family group may be misplaced under a general heading not applicable to it, or some detail of structure may not be correct. This I am sure the student will overlook, when he considers that this is the first attempt that has been made to arrange analytically the numerous families of the great group Heterocera.

It may be advisable, perhaps, to indicate the mode of using the following table, in order to ascertain the family to which an insect may belong, that one wishes to classify, or to ascertain whether it has been described.

It will be noticed that for each *affirmative category* there is a corresponding *negative category*, and, as far as my knowledge extends, each of them are absolute. Thus, the first includes all Heterocerous lepidoptera whose "Wings are not penniform or fissured;" and an insect corresponding to this will be found in its family group some place under this heading. If, on the contrary, the wings of the insect are fissured, it will be found under the second principal category, printed in the same kind of type as the first, viz.: those whose "Wings are penniform or fissured."

If the specimen belongs to the first category, the student will notice whether the hind wings are supplied with a "bristle," or not; if it is absent, the specimen belongs to a family included under the second category. He will then observe whether the wing structure in both the fore and hind wings is alike; if it is, and the specific diagnosis below this category corresponds to his specimen, it belongs to the family Epialidæ.

If the wing structure is not alike in the fore and hind wings of the specimen, then its family must be sought under the category marked \* \*. If this has not a "costal vein" in the hind wings, it is included in the division marked §; but if it has a "costal vein," then under the next affirmative category referring to the same structure. This latter category is again subdivided into two others, insects "*With an intercostal cell*" and "*Without an intercostal cell*," and the latter is again subdivided into groups according to the peculiarities of the "*internal vein*."

The specimen, however, probably is supplied with a "bristle" at the base of the costa of the hind wings, and in this case the student will pass without further examination of the categories included in the second one, to the corresponding affirmative category, printed in the same kind of type as the second, viz.: insects "with a bristle at the base of the hind wings."

If the wings are "without long cilia," the specimen will be found under the next head; but if, on the contrary, the wings have "long cilia," all the matter included under the negative category may be passed over until the corresponding affirmative one is reached, under which will be found the family to which the specimen belongs.

To assist the student in discovering the various affirmative and negative categories, those which have reference to the same structural peculiarities are printed in some distinctive type, and the different categories separated by spaces. He should confine himself to these, until some one is found

that corresponds to his specimen, and then continue the investigation by examining the various subdivisions under it, until one is found that is again descriptive of his specimen, and at last the special description indicating the family. Whenever the category disagrees with his specimen, he should, therefore, pass on to the next one in the same kind of type until one is found that does agree with it.

*Each category includes everything between it and the next of the same value, so that it is useless to look under a disagreeing head for anything that characterizes the specimen whose structure does not correspond to it.*

The student must be careful, in detaching the wings from the thorax, of a moth, that the little "bristle," which attaches the hind wings to the anterior pair, is not broken.

### HETEROCERA.

*Antennæ setaceous or fusiform with the apex attenuated (except Castania, which, however, has a collar to the prothorax and the posterior wings a bristle): wings usually flat in repose; hind wings generally furnished with a bristle; prothorax covered by a collar or patagium. Very often with ocelli or false eyes on the head behind the antennæ. Flight diurnal, crepuscular, most frequently nocturnal.*

### WINGS NOT PENNIFORM OR FISSURED.

#### HIND WINGS WITHOUT A BRISTLE AT THE BASE OF THE COSTA.

\* Neurulation alike in the fore and hind wings.

Costal vein long; a basal spur at base; subcostal 4-branched, apical furcate.

Wings long, narrow; discal 3-branched. Median 2-branched. Antennæ very short.  
**Epialidae.**

\*\* Neurulation not alike in fore and hind wings.

§ Without a costal vein.

Subcostal vein bifid; with disco-central nervule; median 4-branched.

**Bombycidae (Oylothrix).**

§§ With a costal vein.

† With a more or less distinct intercostal cell.

Costal vein short; subcostal 3 or 4-branched.

Cell nearly circular, more or less distinct: discal branchless: median 4-branched.  
**Bombycidae.**

Costal rather long; subcostal bifid, attenuated.

Cell long, narrow: discal fold decided; median 4-branched. F. w. fold thickened.  
**Cossidae.**

†† Without an intercostal cell.

‡ With a long internal vein, extended to anal angle.

Costal long, free, simple. Subcostal 3-branched.

Disk usually open; if closed without disco-central.

F. w. with the subcosto-inferior nervule furcate.

**Saturnidae.**

F. w. with the subcosto-inferior nervule simple.

**Ceratocampidae.**

†† With a short internal vein, near inner margin.

Costal and subcostal veins parallel towards the base.

Subcostal divides interior to the discal vein.

Discal angulated, simple, arising from subcosto-post apical.

Antennæ pectinated or filiform. Palpi very short. Tongue almost obsolete.

Wings often falcate.

**\* Drepanulidae.**

††† Without an internal vein. Subcostal bifid.

Median trifid. Discal nervule arises from subcostal.

F. w. costal vein bifid. H. w. tailed. Imago papilionaceous.

**Uranidae.**

# **HIND WINGS WITH A BRISTLE AT THE BASE.**

WINGS WITHOUT LONG OILS, NOT POINTED.

HIND WINGS WITHOUT A COSTAL VEIN.

*Submedian and internal veins distinct, long.*

\* Median vein 4-branched,

Hind wings, costa dilated at the base.

Subcostal curved, 3-branched, with an imperfect basal cell.

F. w. subcostal exterior to the disk 4-branched; fold thickened; submedian doubly furcate.

**Bombycidae (Gen. Pimela).**

Hind wings, costa not dilated at base.

Subcostal bifid. Lower branch not decidedly angulated.

Without disco-central. Antennæ incrassated at the tip, shortly pectinate.

**Zygaenidae.**

Antennæ setaceous, pectinate; body often metallic.

Subcostal bifid. Lower branch decidedly angulated.

With disco-central, antennæ pectinate; wings slightly diaphanous. **Gtenuchidae.**

\*\* Median vein 3-branched.

† Subcostal trifid. With a disco-central nervule.

Antennæ setiform; wings semidiaphanous.

**(Mudaria? C.) Lithosidae.**

‡ Without disco-central nervule.

Wings with marginal gemmated spots. (A remarkable exception.) **Pyralidae.**

F. w. with a broad stripe; f. w. neuration sphingiform (Ormetica, C.)

**Glaucopididae.**

†† Subcostal bifid. Without disco-central.

Antennæ minutely pectinated; f. w. subcostal branches separated.

**Lycomorphae.**

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\* Characters drawn from *Platypteryx* (*Drepana*) *lacertinaria* of Europe.



‡‡ With a disco-central nervule.

Antennæ deeply pectinate; wings limpid; ♀ apterous. F. w. submedian with branches. **Psychidae.**

Antennæ shortly pectinate; body metallic. F. w. neuration sphingiform. **Glaucopididae.**

\*\*\* Median bifid, lower branch furcate at tip.

† Subcostal bifid. With disco-central nervule.

Antennæ pectinate; wings often limpid or with limpid spots. **Glaucopididae.**  
*Submedian distinct, internal obsolete.*

† Median vein 2-branched. *The females of genus Dineurodes.*

†† Median vein 3 or 4-branched.

Subcostal trifold, furcate at base; \* discal vein with or without nervule.

F. w. with one or more areoles. Wings thin. Body slender. **Geometridae.**  
*Submedian and internal veins obsolete.*

Subcostal and median 3-branched; with disco-central. *Sexual peculiarity among ♀ of Eubolides.* **Geometridae.**

HIND WINGS WITH A COSTAL VEIN.

§ 1. *With an intercostal cell.*

† With an internal vein.

Median 3 or 4-branched. Subcostal bifid.

Lower branch of subcostal angulated; costal furcate at base.

Antennæ fusiform. F. w. with nervules radiating from the disk. **Zygaenidae.**

Lower branch not angulated; costal simple at base.

Antennæ fusiform, setigerous, sometimes ciliated. F. w. with subcostal nervules aggregated. **Sphingidae.**

†† Without an internal vein.

Median vein 3-branched.

Subcostal simple; discal vein with angle pointing outward, with a nervule.

Subcostal bifid, discal vein curved, with disco-central.

Wings thin, delicate; h. w. angulated at apical nervule. F. w. with two areoles. **Geometridae.**

§ 2. *Without an intercostal cell.*

¶ Hind wings without an internal vein.

Hind wings with a tail-like appendage.

Median 3-branched. Subcostal bifid.

Disk closed, with disco-central. F. w. with costal vein simple; subcosto-inferior simple. **Sematuridae.**

Hind wings without tail-like appendage.

Median 3-branched. Subcostal bifid. Costal and subcostal pendiculate.

Body slender. Wings thin. F. w. often with an areole. **Geometridae.**

\* Properly considered, the costal and subcostal are partly soldered together, but the formation might be mistaken for a trifold vein, by a novice.

†† Internal vein, never very short or nearly coincident with inner margin.

*Antennæ thickened or incrassated towards the tip.*

Wings with transparent spots. Abdomen tufted at the tip. **Thyridæ.**

Subcostal bifid. Median trifid. With disco-central.

F. w. submedian with an internal branch; subc. inferior furcate. Antennæ clavate. **Castniadæ.**

F. w. submedian simple; subc. inferior simple. Antennæ thickened towards tips. **Agaristidæ.**

Subcostal simple. Median trifid, upper branches pedicellate.

With disco-central.

Wings often hyaline. F. w. with radiating nervules; costa folded. Antennæ fusiform. **Egeriadæ.**

*Antennæ never thickened or incrassated toward the tip.*

‡1. **F. W. WITH NERVULES RADIATING FROM THE DISK.**

Hind wings, costal vein simple.

Subcostal simple, attenuated towards base; discal nervules, two.

F. w. spotted; medio-posterior remote; secondary cell very distinct.

**Gen. Poeciloptera Clem.**

F. w. not spotted; medio-posterior not remote; secondary cell indistinct.

**Gen. Anaphora Clem. Tineidæ.**

Subcostal simple, slightly joined to costal and curved into the discal.

Median 3-branched; discal vein, simple.

F. w. with seven nervules to the costa and hind margin\*. (E. Zee.) **Pyralidæ.**

Subcostal bifid, not attenuated; branches usually connivent.

Median 4-branched; without disco-central.

F. w. costa at base often arched; median nervules curved. Subcostal remote.

**Tertrisiidæ.**

‡2 **F. W., WITH NERVULES NOT RADIATING FROM THE DISK.**

1° F. W., WITH THE FOLD THICKENED BY A SLENDER VEIN.

Costal vein simple, crossing subcostal or pedicellate.

Subcostal bifid. Discal irregular, with medio-discal branch.

Median 3-branched. Tongue extremely short or absent. Body short, thick.

**Limacodidæ.**

2° F. W., WITH THE FOLD NOT THICKENED.

\* MEDIAN 3 OR 4-BRANCHED. COSTAL SIMPLE.

† Subcostal bifid, attenuated towards the base from the discal.

With maxillary palpi. Antennæ, basal joint often with appendages.

**Pyralidæ.**

†† Subcostal bifid, not attenuated; parallel to or in contact with costal.

*Head without ocelli. Tongue nearly obsolete or short.*

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\* This wing-structure is a remarkable exception in the family.

‡ *Subcostal divides exterior to the discal vein.*

Costal arched at base, touching subcostal slightly.

Disco-central wanting. Antennæ generally pectinate. Abdomen tufted at end.

*Liparidae.*

Costal parallel to or in contact with subcostal toward the base.

With disco-central. Antennæ shortly pectinate or ciliate. Body thick. Legs hairy.

*Notodontidae.*

Costal and subcostal with a common stalk.

Median 3-branched. Discal simple or with medio-discal. F. w. subcostal remote.

*Lithosiidae.*

Median 3-branched. Disco-central feeble, lost in the fold. Head small, sunken.

(*Glottulides*) *Noctuidae.*

‡‡ *Subcostal divides interior to the discal vein.*

Costal and subcostal vein parallel.

With medio-discal. Antennæ simple, pubescent. Body rather thick. Legs hairy.

*Noctuidae pars. (Noctu-Bombycides.)*

*Head with ocelli. Tongue short or almost obsolete.*

‡ *Subcostal divides exterior to the disk.*

Costal and subcostal parallel or touching at the base.

With disco-central. Antennæ simple or ciliated. Legs and abdomen with tufts.

*Notodontidae pars.*

Costal and subcostal veins with a common stalk.

Antennæ bipectinate, ciliate, serrate or simple.

Labial palpi small, pilose, scarcely exceeding the clypeus.

Medio posterior nervule remote from medio-inferior.

Median 4-branched. Discal vein angulated, simple. Abdomen, most often, spotted.

*Arotiidae.*

Median 3 branched; discal angulated simple. F. w. apical vein trifid at tip.

Gen. *Crocota.*

*Head with ocelli. Tongue moderately long.*

‡ *Subcostal divides exterior to the disk.*

Costal and subcostal pedicellate or decussating at base.

Labial palpi ascending, stout; last joint closely scaled, slenderer than the middle.

Median 3-branched, with medio-discal or disco-central.

F. w. always with an areole, sometimes two. Wings deflexed.

*Noctuidae.*

\*\* MEDIAN 4-BRANCHED. COSTAL VEIN BIFID.

Subcostal simple, attenuated or obsolete, from a minute intercostal.

Discal, with a long curve. Head with maxillary palpi.

*Pyralidae.*

¶¶¶ Hind wings with an internal vein, very short, or almost obsolete.

Internal vein nearly coincident with the inner margin.

Costal and subcostal pedicellate, parallel, or in contact towards the base.

Subcostal bifid; median trifid; with or without disco-central.

Wings thin, often elevated in repose. F. w. often with an areole. *Geometridae*.

WINGS WITH LONG CILIA, POINTED. IMAGO SMALL.  
NEURATION SIMILAR IN FORE AND HIND WINGS.

Costal veins bifid or simple.

Subcostal with 2nd'y cell. F. w. with an intercostal branch between a branch of the costal and the first of subcostal; second branch furcate, with four branches from the end of the disk. An intermediate branch between the bifid medio-posterior and the median vein. *Micropterigidae*.

Subcostal without 2nd'y cell. In both wings, three subcosto-marginal nervules, the apical bifid; medio-posterior from near the base, connected with the median or a branch of it by a transverse branch. *Micropterigidae*.

NEURATION DISSIMILAR IN FORE AND HIND WINGS.

*Hind wings rather broad; very often ovate-lanceolate, never linear-lanceolate.*

Median 2-branched; discal nervules 2 or 3. Subcostal bifid or simple. Group *Tineides*.

Median 3-branched; discal nervules 2, 1 or none. Subcostal bifid or simple.

*Tineidae*.

Costa often excised; very often the upper median nervules pedicellate. Group *Gelechiides*.

*Hind wings extremely narrow, linear lanceolate or almost setiform.*

Median vein 2 or 3-branched. Subcostal simple or bifid.

Disk most often unclosed; with a simple or furcate nervule, free, or arising from the subcostal. Group *Gracilarides*.

Median vein simple. Subcostal central, 2, 3 or 4-branched.

*Gracilaridae*.

Disk always unclosed. Costal vein obsolete.

Group *Lithocolletides*.

## WINGS PENNIFORM OR FISSURED.

Fore wings fissured, hind wings entire.

Sometimes amongst the *Deltoididae*.

Both wings fissured.

Fore wings bifid. Hind wings trifid.

*Pterophoridae*.

Fore and hind wings divided into six.

*Alucitidae*.

Notes upon GRAPTA COMMA, Harris, and GRAPTA FAUNUS, Edwards  
(C-ALBUM, of some Authors).

BY W. H. EDWARDS.

Dr. Harris describes Comma as distinct from the European *C. album*, and seems not to have known *Faunus*; which, instead of *Comma*, was the species that had been supposed identical with *C. album*. Dr. Fitch (New York Reports, &c., No. 3, page 241) appears, on the other hand, not to have known *Comma*, for he considers it to be the same as our "*C. album*" (*Faunus*), which itself, he thinks, can be nothing else than *C. album* of Europe, according to Westwood's description of that species.

*Grapta Comma* is a well-defined species. In the form of its wings, as well as in color, it resembles *Interrogationis*, rather than *Faunus*. The wings are much less indented, and their color is lighter, more inclining to orange. The spots are of the same number and similarly disposed (as is also the case in *Progne*), but in *Faunus* they are larger and darker, and the marginal band is broader and blacker. Of the under side of *Comma* Dr. Harris says: "It is marked with light and dark brown, the hind wings with a silvery comma in the middle." Usually the whole under side has a lilac tinge; across the middle of the wings is an irregular darker band; within and along the hind margin of both wings is a row of small blue spots, and anterior to this another row of minute black spots upon the brown ground.

The female scarcely differs in shape from the male, or in other respect, above, but the under side is plain, with no marbling, and generally almost black, darkest near base; sometimes, however, it is dark brown, and one bred specimen was yellow-brown, with the wings less indented. In all, the marginal spots are almost obsolete.

I found the larvæ of *Comma* upon the broad-leaved nettle, in the forests of the Catskill Mountains, in July, 1861, and raised to maturity twelve individuals, about half which were females. My attention was first attracted by observing certain leaves drooping, and more or less eaten. On the under side of these I usually found the caterpillar, inactive, and never more than one upon the same plant. The half-grown larvæ were black, with a yellowish stripe along the side from the third segment to the tail, and with yellow stripes across the back and spots of same color at the base of the dorsal spines, which were yellow, tipped with black. The mature larvæ were white, mottled or striped with grey or ashen, and with red spiracles. The chrysalis was pale brown, with gold spots on the protuberances, and the butterfly appeared at the end of fourteen days. Besides

those obtained in this manner, I captured, in course of the season, about a dozen others along one of the narrow forest roads which they frequented, in company with *Progne*, *Faunus* and some of the larger *Vanessas*. In this locality *Faunus* was abundant. I took sixty in one morning, and not less than one hundred and fifty during the season. Probably the larvæ of this species would have been found, in early summer, on the wild gooseberry bushes that grew every where along the road. *Faunus* remained till late in October, fully six weeks after *Comma* had disappeared. *Comma* seems to be more rare than either of the allied species. I have met with it in Kanawha county, West Virginia, but nowhere else, except in the Catskills. A single specimen was received from Fort Simpson, where *Progne* and *Faunus* seem to be abundant.

*Grapta Faunus* differs from *C. album* much as it differs from *Progne* and from *Comma*, and as *Comma* differs from the small variety of *Interrogationis*. The general plan in the markings of these species is the same, and the principal differences are in minor details. The upper side of all have the same number of spots, and they are disposed in same manner. Beneath they all have the basal half of the wing darkest, a similar dark angular common band just before the middle, a lighter space beyond this, and two rows of spots along the hind margin the outer of which are confluent. The entire surface of each is more or less marked with fine, transverse, abbreviated streaks. But *Progne* has the surface so obscured by these streaks, that often nearly the whole is black, and the common band hardly distinguishable. The entire row of spots is blue-black or green, the inner black, and the silver mark is an L. *Comma* is marbled in shades of brown, with a general lilac tinge; the outer row of spots is blue, and the inner black, while the silver mark is a very open C. *Faunus* is dark brown next the base, pale beyond, marbled with grey-white, and the whole more or less clouded with vinous. The marginal rows of spots are both blue-black or sometimes green, and the silver mark in the male is usually a small angular G, but in the female sometimes an L, as in *Progne*, and sometimes a comma, as in the species so named.

Comparing *Faunus* with *C. album*, the former is deeper colored by many degrees; it is one-fifth larger, the black spots and margins much heavier, and, owing to this and the depth of the ground-color, the general hue of the surface is much darker than either *C. album* or any of the American species. The under side of *C. album* is described by Westwood as "greyish ashen," and by Mr. Stainton as "dusky brown." Several European specimens, now before me, answer one or other of these

descriptions. But *Faunus* has the surface beautifully marbled in several colors.

That this question of resemblance might be carefully determined, I enclosed specimens of *Faunus* to Mr. H. T. Stainton, whose work on British Butterflies I have quoted, and who would be well acquainted with *C. album*, which is a common British species, requesting his opinion as to its identity with the other. I have received the following reply:—

*“Lewisham, near London, 10th Feb’y, 1862.*

DEAR SIR:—I have carefully examined the Butterflies enclosed in your letter of 16th Dec., and have compared them with American specimens in the collection of the British Museum. No. 2 (*Faunus*) is a distinct, unnamed species, which, in the ‘List of Lepidoptera in the British Museum, Part I., 1844,’ follows *V. Progne* as ‘*Vanessa* ——? from Martin’s Falls, Albany River, Hudson’s Bay.’ ”

As the “List” referred to was prepared by Mr. Doubleday, we may conclude that he also regarded *G. Faunus* as distinct from *C. album* of Europe.

*G. Interrogationis* presents an interesting anomaly. We constantly find at least three well-marked varieties, one much larger than the others, plain colored below in both sexes, with no markings except a dark irregular band across the middle of the wings. A second variety is much mottled on the under side, and approaches *Comma*, and the third is closely allied to *Comma*, having, in addition to the marks of the second variety, the double marginal series of spots so characteristic of the smaller *Graptas*, the outer one being blue-green, the inner, black or brown. These varieties would seem to be intermediate species, but hitherto, from the difficulty of identifying the larvæ as coming from the same laying of eggs, and their perplexing variation of color and markings, and from their feeding on the same plants at the same seasons, they have been a puzzle to collectors. Boisduval and Leconte say: “If we had not obtained all these varieties from the same caterpillar, we could easily make three species.”

## STATED MEETING, APRIL 14.

President NEWMAN in the Chair.

Fourteen members present.

## REPORT OF COMMITTEE.

The Committee on Dr. Horn's paper, read March 10th, reported in favor of its publication in the Proceedings of the Society.

## DONATIONS TO CABINET.

277 specimens of COLEOPTERA, 3 ORTHOPTERA, and 2 NEUROPTERA (all English), from James Ridings.

159 specimens of COLEOPTERA (for exchange), from T. B. Ashton.

41 specimens of COLEOPTERA (for exchange), from Robert Nuttall.

25 specimens of HEMIPTERA (*Notonecta lunigerum*, *Corisa alternata*, *Cicada epigrammatus*, *Sehirus ligatus*, *Zicrona clauda*, *Coreus affiliatus*, *Cimex platychilus*, *Eurygaster alternatus*, *Homamys seneifrons*, *Coenus viridicatus*, all from Nebraska), from John Pearsall.

3 species of NEUROPTERA (*Termes flavipes* Kollar, from Philadelphia and Texas. *Termes cinereus* n. sp., and *Termes tubiformans* n. sp. from Texas), and large numbers of the Honey-Ant (*Myrmecocystus mexicanus*), collected at Fredericksburg, Texas, from S. B. Buckley.

2 specimens of DIPTERA (*Leptis ornata*), 1 ORTHOPTERA (*Xya terminalis*), and 1 NEUROPTERA (*Macronema zebratum*), from William Evett.

1 specimen of DIPTERA (*Trypeta longipennis*), from George Hill.

1 specimen of HEMIPTERA (*Mononyx badius*, from Nicaragua), from Dr. G. H. Horn.

## DONATIONS TO LIBRARY.

*A Treatise on some of the Insects Injurious to Vegetation*, by Thaddeus William Harris, M. D. (New Edition.) Boston: 1862. Deposited by Dr. Samuel Lewis.

*Proceedings of the Boston Society of Natural History*, Vol. 8, pages 257-304. From the Society.



*Prairie Farmer* (Chicago, Ill.), Nos. 11 to 15, of Vol. 9. From the Editors.

*A Portrait of Thomas Say*, presented by Horace B. Mitchell.

#### WRITTEN COMMUNICATIONS.

Letters were read from Mr. W. J. Howard, of Central City, Colorado Territory, and Mr. A. S. Reber, of Bellefonte, Pa., acknowledging their election as *Correspondents* of the Society.

Also, a letter from the Lyceum of Natural History, dated New York, March 24th, 1862, acknowledging the receipt of the Proceedings of the Society from June, 1861, to February, 1862.

A communication was read from Mr. Evett, reporting the capture of the following Coleoptera during March and April, 1862, viz. :—*Batriscus lineaticollis*, and *Lëbia vittata*, under blocks of wood, and *Dicælus ovalis*, under stones.

The following papers were presented for publication in the Proceedings :—

“Descriptions of several new Hymenoptera, by Edward Norton.”

“On the Synonyms of *Cimbex americana*, by Edward Norton.”

“Descriptions of two new species of Termites, from Texas, by S. B. Buckley.”

“Catalogue of the described species of several Families of Hymenoptera inhabiting North America, by E. T. Cresson.”

And were referred to Committees.

#### ELECTIONS.

Mr. S. B. Buckley, of Texas, and Mr. Aug. R. Grote, of Buffalo, New York, were elected *Correspondents* of the Society.

## Description of some new North American Coleoptera.

BY GEO. H. HORN, M. D.

The publication of isolated species has always been deemed objectionable by entomological writers. In palliation, the only excuse is, that the several genera and groups to which the species belong, have been but recently monographed by various authors. The species have been derived from many localities, of which the insects have been studied and for the most part been known in distinct publications.

**TROGOSITA.**

*T. marginata*, picea, subnitida, depressa, capite thoraceque grosse punctatis hoc postice parum angustato, lateribus vix rotundatis, margine modice reflexo, angulis posticis acutis parvis, basi rotundata, elytris oblongis, basi vix emarginatis, humeris rectis, striis punctatis, interstitiis modice convexis, parce rugulosis, biseriatis subtiliter punctulatis, abdomine confertim subtiliter punctulatis, antennis pedibusque piceis. Long. .20-.25.

*T. marginata* Beauv. Ins. Page 125. Pl. 32, fig. 3.

With some doubt I refer this species to the one indicated by Beauvois. The figures of this author are for the most part recognisable, his descriptions not in the least so. This species resembles the *pleuralis* Horn, from which it differs by its less depressed form, and less rounded sides of the thorax. The head and thorax are more closely punctured. The color is dark brown, with a pale margin to the thorax and elytra. The antennæ and legs are pale rufous. Its position in the arrangement of the species of *Trogosita*, adopted by me in the February number of the Proceedings of the Acad. Nat. Sc., is in advance of the *pleuralis*.

For the privilege of studying this species I am indebted to Mr. Henry Ulke, of Washington. It appears to be not uncommon in Ohio and Louisiana, whence these specimens were obtained.

**MARGARINOTUS.\***

*M. guttifer*, ovalis, convexus, niger, obscurus, ore antennisque rufis, punctatissimus rugosus, tuberculis ovalis lævibus nitidis; pronoto duplici serie transversa, 4, 6, elytris lineis longitudinalibus irregularibus, propygidio 5, pygidio 2, tibiis anticis 4 dentatis, posticis biseriatis spinulosis. Long. .26, lat. .18.

The differences between this and the only other known species, *scaber* Fabr., are so striking as scarcely to need comment. In shape it

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\* This genus is scarcely distinct from *Hister*. The sculpturing of the elytra is the character on which Marseul appears to place most reliance, in his enumeration of generic differences.

is more elongated. The smooth elevated spots are more oval than in the European species. The thorax has two, instead of three transverse rows, of which the middle pair in the anterior row is to a slight extent confluent with that of the second row. The spots on the elytra are arranged in four longitudinal rows, in the scaber the rows amount to six. A sutural row of spots also exists on each elytron; these spots are of irregular shape and disposition. The tubercles of the propygidium are the same in both species, in number; the pygidium in our species has but two spots. The anterior tibiae are coarsely four-toothed, the posterior ones are biserially spinulose, the spines in one row alternate with those of the other row, they are not in opposite pairs. Locality, Nebraska. For this beautiful little insect the Society is indebted to Mr. John Pearsall.

#### LANGURIA.

*L. uhleri*, rufa, nitida, thorace latitudine longiore, convexo, parce punctulato, lateribus late rotundatis, elytris cyaneo-nigris, punctato striatis, abdominis segmentis duabus ultimis capite antennisque nigris, pedibus rufis, femoribus apice nigris. Long. .30.

To Mr. Philip R. Uhler, of Baltimore, this little species is dedicated.

It resembles closely the *mozardi*, differing, however, in its more elongate form; the sides of the elytra are more convergent posteriorly. The thorax is more elongate, less convex above, and less strongly rounded sides. The head and last two abdominal segments are black. The feet are rufous, excepting the apices of the femora, which are black. When more specimens have accumulated, this may prove to be a variety of *trifasciata*. I am indebted to Mr. Uhler, for this species. It was found in the neighborhood of Baltimore.

#### TRIPLAX.

*T. frontalis*, elongato ovalis, nitida convexa, capite parce punctulato, fronte nigris, thorace flavo fere duplo brevior, antrosum angustato subtiliter punctatis elytris nigris subtiliter striato-punctatis, interstitiis vix parce punctulatis, antennis nigris. Long. .25.

Resembles closely the *macra* Lec., from Maine, but readily distinguishable by the more deeply punctured elytral striae. The head is black, excepting that behind the posterior margin of the eyes. From Texas. My collection.

I would here state that the *Leptura* described and figured by me under the name of *nitidicollis*, is identical with that described by Newman as *vibex*. The correction is made, that trouble in future may be avoided.

PROCEEDINGS  
OF THE  
ENTOMOLOGICAL SOCIETY  
OF PHILADELPHIA.

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MAY, JUNE AND JULY, 1862.

No. 7.

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STATED MEETING, MAY 12.

President NEWMAN in the Chair.

Twenty-two members present.

REPORTS OF COMMITTEES.

The Committees on Mr. Fay's paper read March 10th, and on the papers of Messrs. Norton, Buckley and Cresson read April 14, reported in favor of their publication in the Proceedings of the Society.

DONATIONS TO CABINET.

180 specimens of HYMENOPTERA (*Cimbex americana*, *Acordulecera dorsalis*, *Hylotoma humeralis*, *H. MacLeayi*, *Selandria halcyon*, *Atlantus pallipes*, *A. verticalis*, *A. mellosus*, *A. atroviolaceus*, *A. tardus*, *A. rufopectus*, *A. excavatus* Norton (Type), *Dosytheus bicolor*, *D. arvensis*, *Dolerus unicolor*, *D. sericeus*, *Emphytus inornatus*, *E. mellipes*, *Macrophya bicinctus*, *M. flavicoxæ*, *M. epinotus*, *Tenthredo 14-punctatus* Norton ♂ ♀ (Types), *Strongylogaster multicinctus* Norton (Type), *Taxonus uncinatus*, *Taxonus dubitatus*, *Nematus corniger*, *Nematus longicornis*, *Nematus integer*, *Lyda semicinctus* Norton (Type), *Lyda scripta*, *Xyela tricolor* Norton (Type), *Xyphidria attenuatus* Norton (Type),

*Tremix columba*, *Urocerus albicornis*, *Orysus hæmorrhoidalis*, *Peltastes pollicinctorius*, *Ichneumon comptus*, *I. unifasciatus*, *I. cingor*, *I. malac-*  
*us*, *I. devinctor*, *I. alternator*, *Cryptus inquisitor*, *C. dimelapsus*, *Ophion*  
*relictus*, *O. bilineatus*, *O. purgatus*, *O. imbecillis*, *O. cecropia*, *Anomalon*  
*mundus*, *A. flavicornis*, *A. mellipes*, *A. humeralis*, *Ephialtes irritator*,  
*Trogus nubilipennis*, *T. exesorius*, *Rhyssa lunator*, *R. atrata*, *Pelecinus*  
*polyturator*, *Evania unicolor*, *Leucospis affinis*, *Trypoxylon albitarse*,  
*T. clavatum*, *Oxybelus emarginatus*, *Orabro 6-maculata*, *C. 10-maculata*,  
*C. confluentus*, *Philanthus punctata*, *P. vertilabris*, *Cerceris fumipennis*,  
*C. deserta*, *C. clypeatus*, *Larrada analis*, *L. arcuata*, *L. argentata*,  
*Tachytes distinctus*, *Bembex monodonta*, *B. fasciata*, *Monedula ventralis*,  
*M. carolina*, *M. pictifrons*, *Hogardia speciosa*, *Pompilus tropicus*, *P.*  
*unifasciatus*, *P. nebulosus*, *P. fenereus*, *P. petiolatus*, *P. biguttatus*, *P.*  
*algidus*, *Ceropales ferruginea*, *C. bipunctata*, *Pelopæus cæruleus*, *P. fla-*  
*vipes*, *P. canadensis*, *Sphex ichneumonea*, *S. pennsylvanica*, *S. tibialis*,  
*S. philadelphica*, *S. apicalis*, *Priononyx atrata*, *P. Thomæ*, *Chlorion*  
*cæruleus*, *Ammophila intercepta*, *A. gracilis*, *A. gryphus*, *Myzina sex-*  
*cincta*, *Scolia 4-maculata*, *S. bicincta*, *S. dubia*, *S. nobilitata*, *Elis*  
*limosa*, *E. plumipes*, *Tiphia inornata*, *Sapyga centrata*, *Mutilla fenes-*  
*trata*, *M. scrupea*, *M. occidentalis*, *M. ferrugata*, *Eumenes fraterna*, *Ze-*  
*thus spinipes*, *Odynerus campestris*, *O. flavipes*, *O. sæcularis*, *Vespa*  
*maculata*, *V. germanica* (Amer. var.), *V. vidua*, *Polistes annularis*, *P.*  
*metricus*, *P. pallipes*, *P. americanus*, *P. rubiginosus*, *Monobia quadridens*,  
*Sphecodes dichroa*, *Halictus parallelus*, *H. confluentus*, *H. subquadratus*,  
*H. ligatus*, *H. inconspicuus*, *Andrena hirticeps*, *A. vicina*, *A. desponsa*,  
*A. paganica*, *Agapostemon tricolor*, *A. pulchra*, *A. æruginosus*, *Angochlo-*  
*ra purus*, *A. sumptuosa*, *Nomada vincta*, *N. bisignata*, *Epeolus donatus*,  
*Cælioxyx octodentata*, *Anthidium notatum*, *A. emarginatum*, *Osmia buc-*  
*conis*, *O. lignaria*, *Megachile acuta*, *M. femorata*, *M. melanophæa*, *Melis-*  
*sodes nigra*, *M. binotata*, *M. atriventris*, *Ceratina dupla*, *Anthophora*  
*sponsa*, *Xylocopa carolina*, *Bombus americanorum*, *B. vagans*, *B. elatus*,  
*B. fervidus*, *B. virginicus*, *B. ternarius*, *Apis mellifica*), 105 HEMIPTERA  
(*Puchycoris variabilis*, *Homæmus parvulus*, *Podops dubius*, *Corimæna*  
*nitiduliodes*, *C. unicolor*, *C. pulicaria*, *Arma modesta*, *A. nigripinna*, *Zi-*  
*crona clauda*, *Eurydema regina*, *Cyrtomenus castaneus*, *Amnestus spini-*  
*frons*, *Sehirus ligatus*, *Brochymena arborea*, *Euschistus punctipes*, *E. tri-*  
*stigma*, *E. crassus*, *Proxys brevispinus*, *Mormidea typhæa*, *Eysarcoris*  
*carnifex*, *Cænus viridicatus*, *C. delia*, *Pentatoma graminicolor*, *P. lugens*,  
*P. purpurata*, *P. semivittata*, *P. calceata*, *Hymenarcys nervosa*, *Strachia*

*histrionica*, *Rhaphigaster sarpinus*, *Acanthosoma laterale*, *Crinocerus galeator*, *Merocoris distinctus*, *Metapodius maculiferus*, *Anisoscelis oppositus*, *Alydus 5-spinosus*, *A. pilosulus*, *A. calcaratus*, *A. eurusius*, *Neides spinosus*, *Gonocerus tristis*, *G. vittiger*, *Chariesternus antennator*, *Harmostes virescens*, *Rhopalus maculigerus*, *Lygæus reclinatus*, *L. turcicus*, *L. aulicus*, *Nysius sobrinus*, *Pachymerus fera*, *P. constrictus*, *Pterotmetus abbreviatus*, *Myodocha monopetiolata*, *Ædancala dorsalis*, *Cymus residæ*, *Ophthalmicus bullatus*, *Anthocoris pseudo-chinche*, *Lopus dolabratus*, *Miris nubilum*, *M. lævigatus*, *Capsus 4-vittatus*, *C. goniphorus*, *C. medius*, *C. robinæ*, *C. linearis*, *C. discoidalis*, *Heterotoma fusiformis*, *Phytocoris multicolor*, *P. querci*, *Camaronotus clavatus*, *Phymata erosa*, *Tingis hyalina*, *Aradus americanus*, *A. capitatus* Uhler (Type), *A. cruentus*, *A. quadrilineatus*, *A. æqualis*, *Dysodius parvulus*, *Prionotus novenarius*, *Harpactor cinctus*, *Sinea multispinosa*, *Zelus dispersus*, *Euagorus viridis*, *E. tergatus*, *Reduvius personata*, *Apiomerus crassipes*, *A. spissipes*, *Pirates abdominalis*, *Rasahus carinatus*, *Nabis ferus*, *N. literatus*, *Gomphocephalus nabiformis*, *Hydrometra lineata*, *Ploiaria brevipennis*, *Gerris apterus*, *G. lacustris*, *G. rufo-scutellatus*, *Salda interstitialis*, *S. uniforme*, *Corisa interrupta*, *C. oblitterata*, *Notonecta lunigerum*, *N. undulata*), 62 HOMOPTERA (*Otiocerus Coquebertii*, *Phylloscelis atra*, *Issus coleopratus*, *Flata vulgaris*, *Pæcioloptera septentrionalis*, *P. bivittata*, *P. pruinosa*, *Aphrophora parallela*, *A. quadrangularis*, *A. saratogensis*, *A. 4-notata*, *Proconia undata*, *Diedrocephala 4-vittata*, *D. mollipes*, *D. communis*, *D. bifida*, *Clastoptera obtusa*, *C. proteus*, *Fidicina auletes*, *Cicada pruinosa*, *C. septendecim*, *C. rimosa*, *C. hieroglyphica*, *C. parvula*, *Ceresa bubalis*, *C. diseros*, *Smilia van*, *S. inermis*, *Caranota arcuata*, *C. mera*, *Gargara inornata*, *Entilia sinuata*, *Thelia bimaculata*, *T. 4-vittata*, *T. unanimis*, *Tragopa calva*, *Enchenopa binotata*, *E. latipes*, *Bythoscopus clitellarius*, *B. seminudus*, *Mucropsis nobilis*, *Typhlocyba comes*, *T. Fubæ*, *Scolops sulcipes*, *Jassus irroratus*, *J. immistus*, *Ledra aurita*, *L. caryæ*, *Gypona 8-lineata*, *G. columbia*, *Penthimia faretu*, *Cælidia subfasciata*, (*C. olitoria*), 60 NEUROPTERA (*Psocus contaminatus*, *P. striatus*, *P. abruptus*, *P. venosus*, *Perlu occipitalis*, *Tæniopteryx frigida*, *Ephemera natata*, *Pulvinaria limbata*, *Bætis verticis*, *Calopteryx apicalis*, *C. maculata*, *Heterina americana*, *Lestes rectangularis*, *L. hamata*, *Agrion durum*, *A. violaceum*, *A. putridum*, *A. exsulans*, *Ichnura pollutum*, *I. iners*, *Gomphus dilatatus*, *Anax junius*, *Æschna constricta*, *Æ. 4-guttata*, *Æ. heros*, *Libellula semifusciata*, *L. luctuosa*, *L. pulchella*, *L. auripennis*, *L. bistigma*, *Plathemis trimaculatus*, *Mesothemis simplicillius*, *M. longipennis*, *Diplax vicina*, *D. berenice*,

*D. semicincta*, *D. rubicundula*, *D. amanda*, *Perithemis domitia*, *Sialis infumata*, *Chauliodes pectinicornis*, *C. maculatus*, *C. angusticollis*, *Corydalis cornuta*, *Polystoechotes punctatus*, *Chrysopa euryptera*, *Myrmelion obsoletus*, *Ascalaphus hyalinus*, *Panorpa rufescens*, *Bittacus pilicornis*, *B. stigmaterus*, *Neuronia semifasciata*, *Limnophilus pudicus*, *Setodes exquissitus*), 25 ORTHOPTERA (*Ædipoda discoidea*, *Æ. carolina*, *Æ. corallina*, *Æ. sulphurea*, *Æ. eucrata*, *Caloptenus femur-rubrum*, *Opsomala brevicornis*, *Platyphyllum concavum*, *Phaneroptera curvicauda*, *Conocephalus ensiger*, *Phylloptera oblongifolia*, *Xiphidium agile*, *X. gracile*, *Phyllocerus pulchellus*, *Æcanthus nivens*, *Thamnotrizon dorsalis*, *Acheta abbreviata*, *A. minuscula*, *Dendrocharis cratægus*, *Bacunculus Sayi*, *Blabera gigantea*, *Blata pennsylvanica*), and 64 DIPTERA (*Tipula collaris*, *T. costalis*, *T. cunctans*, *T. flavicans*, *T. tricolor*, *T. trivittata*, *Pachyrhina macrocera*, *Limnobia immatura*, *Dicranomyia diversa*, *D. pudica*, *Erioptera holotricha*, *Leptis vertebrata*, *L. terminalis*, *Chrysopila basilaris*, *C. fasciata*, *C. fumipennis*, *C. rotundipennis*, *Syneches rufus*, *Trypetu æqualis*, *T. comma*, *T. polita*, *T. solidaginis*, *T. vernoniz*, *Tetanocera clara*, *T. pulchra*, *T. pictipes*, *T. suratogensis*, *T. sparsa*, *Sepedon fuscipennis*, *S. pusillus*, *Dichæta brevicauda*, *Parydra breviceps*, *P. bituberculata*, *P. 4-tuberculata*, *Scatella lugens*, *Atomosia macrocera*), from Dr. T. B. Wilson.

362 specimens of COLEOPTERA (for exchange), and 6 LEPIDOPTERA (*Vanessa Milberti*, *Leucania unipuncta*, *Eucosmia undulata*), from Dr. J. D. Wingate.

30 specimens of HYMENOPTERA (*Hylotoma scutellata*, *Tenthredo verticalis*, *Dolerus sericeus*, *Nematus ventralis*, *Cladius isomera*, *Lophyrus Abbotii*, *Cræsus latitarsus* Norton (Type), *Lyda abdominalis* Norton (Type), *L. plagiata*, *L. fasciata* Norton ♂ ♀ (Types), *Cephus trimaculatus*, *Sirex nigricornis*, *S. Edwardsii*, *Tremix columba*, *T. sericeus*, *Ichneumon jucundus*, *Peltastes pollicinctorius*, *Cryptus nuncius*, *C? grallator*, *Ibalia maculipennis*, *I. ensiger* Norton (Type), *Evania unicolor*, *Elis pilipes*, *Nomada torrida*, *N. sulphurata*), from George Newman.

21 specimens of HYMENOPTERA (*Vespa vulgaris*, *Polistes diadema*, *P. pullipes*, *Angochlora purus*, *Agagostemon pulchra*), from Edward Norton.

11 specimens of HEMIPTERA (*Stiretrus fimbriatus*, *S. violaceus*, *Eurydema regina*, *Sehirus bilineatus*, *Crinocerus armigerus*, *Cnemodius mavor-tius*, *Ophthalmicus piceus*, *O. niger*, *Zosmenus cinerea*, *Pygolampis americanus*), 2 DIPTERA (*Tabuda fulvipes*, *Paralimna appendiculata*), and 1 HYMENOPTERA (*Fenusa curtus* Norton (Type). from William Evett.

6 specimens of HYMENOPTERA (*Tenthredo californicus* Norton (Type), *Urocerus albicornis*, *Ammophila luctuosa*, *Pelopæus fistularis*, *Elis Toleru*, *Polistes carnifex*), from Dr. Geo. H. Horn.

3 specimens of HEMIPTERA (*Dysdercus suturalis*, *Largus succinctus*), from P. R. Uhler.

2 specimens of HYMENOPTERA (*Troglus exesorius*), bred from the chrysalis of *Papilio asterias*, from Dr. Samuel Lewis.

#### DONATIONS TO LIBRARY.

*Prairie Farmer* (Chicago, Ill.), Nos. 16 to 19 of Vol. 9. From the Editors.

*Proceedings of the Society for March and April, 1862.* From the Publication Committee.

#### WRITTEN COMMUNICATIONS.

A letter was read from Mr. Aug. R. Grote, dated Buffalo, April 17th, 1862, acknowledging his election as a Corresponding Member of the Society.

A communication was read from Mr. Bland, reporting the capture of the following Coleoptera, on the 11th inst., west of the Schuylkill River, below Gray's Ferry: *Lebia scapularis* and *Languria Mozardi*, common on the Dandelion. *Coccidula lepida*, with the beating-net.

The following paper was presented for publication in the Proceedings: "Additions to the Catalogue of United States Lepidoptera, by Aug. R. Grote."

And was referred to a Committee.

#### NEW BUSINESS.

The recent act of the Legislature of Pennsylvania, incorporating the Society, was read and accepted, and a Committee appointed to revise the By-Laws in conformity thereto.

#### ELECTIONS.

Mr. Thomas Shaw, of Germantown, Pa., and Mr. John Getz, of Philadelphia, were elected Resident Members of the Society. Col. Craig Bidle, of Bucks County, Penn., and Mr. William M. Gabb, of San Francisco, Cal., were elected Corresponding Members.



## ON WINTER COLLECTING.

BY H. T. FAY.

It has been well said that any observations, however trivial and common-place they may seem, upon the habits of insects, may prove of some practical use. Hoping, therefore, that the following paper, which comprises the results of my experience in collecting Coleoptera in the vicinity of Columbus, Ohio, during the winter months, may be of some little interest to the lovers of the science of Entomology, I venture to offer for the consideration of the Entomological Society of Philadelphia, a Catalogue of the species I have found in a season of the year, generally deemed so unproductive to the collector.

It is perhaps unnecessary to state, that such of these species as are found safely stowed away in decaying wood for their winters' sleep, could only be reached in moderate weather or at such times as the frost is driven from the ground by the warm winter rains so prevalent in this climate. Nevertheless, a large portion were collected in quite cold weather, and when the ground was covered by snow—I refer to such as are found under moss and loose bark of decaying trees.

I have often been astonished at the number of Beetles congregated in the same spot. On one occasion in particular, on stripping the bark from the base of an oak partially decayed, it would be no exaggeration to say they could be counted by hundreds, comprising about twenty species, mostly common. Is this for warmth?

One more observation and I will proceed with my list. In a place where there are many rotten logs, I may dig in half a dozen without finding a single specimen, the next one I come to will perhaps reward me abundantly.

*Nebria pallipes* Say. Abundant.

*Carabus vinctus* Web. One specimen.

*Scarites subterraneus* Fabr.

*Brachinus fumans* Linn.

*Galerita janus* Fabr.

*Casnonia pennsylvanica* Linn. Under stones.

*Aprius subsulcatus* Dej.

*Cymindis americana* Dej.

*Pinacodera limbata* Dej. Under bark.

„ *fusata* Dej. Under bark.

- Callida marginata* Dej. Under moss.  
*Calathus gregarius* Say. Very common.  
*Platynus hypolithus* Say.  
     " *extensicollis* Say. Extremely abundant.  
     " *sinuatus* Dej.  
     " *melanarius* Dej.  
     " *placidus* Say.  
     " *cupripennis* Say. Rare.  
*Pterostichus stygicus* Say.  
     " *adoxus* Say.  
     " *mutus* Say.  
     " *purpuratus* Lec. Rare.  
     " *erythropus* Dej.  
     " *honestus* Say.  
     " *lucublandus* Say.  
     " *chalcites* Say.  
*Amara (Triena) angustata* Say.  
*Chlaenius sericeus* Forst.  
     " *æstivus* Say.  
     " *nemoralis* Say.  
     " *tricolor* Say.  
*Anomoglossus pusillus* Say.  
*Cratacanthus dubius* Beauv. Under stones.  
*Agonoderus lineola* Fabr.  
     " *pallipes* Fabr.  
*Anisodactylus baltimorensis* Say.  
     " *carbonarius* Say.  
     " *nigrita* Dej.  
*Bradycellus atrimediæ* Say.  
     " *ruprestris* Say.  
*Harpalus caliginosus* Fabr.  
     " *pennsylvanicus* DeGeer.  
     " *spadiceus* Dej.  
     " *opacipennis* Hald.  
*Stenolophus conjunctus* Say.  
     " *fuliginosus* Dej.  
     " *testaceus* Dej.  
*Bembidium lævigatum* Say.  
*Silpha surinamensis* Fabr. One specimen.

*Epuræa rufa* Say.

*Prometopia 6-maculata* Say.

*Omosita colon* Fabr.

*Alindria cylindrica* Geoff. Very rare.

*Trogosita castanea* Melsh.

*Peltis quadrilineata* Melsh.

*Ditoma quadriguttata* Say.

*Aulonium parallelopipedum* Say. Very abundant.

*Colydium lineola* Say.

*Endectus reflexus* Say.

*Bothrideres geminatus* Hald.

*Rhyssodes exaratus* Newm. In rotten logs.

„ *conjungens* Newm. In rotten logs.

*Sylvanus surinamensis* Linn.

*Nausibius dentatus* Say.

*Catogenus rufus* Fabr. Abundant.

*Cucujus clavipes* Oliv. Very common in winter, have never met with it in summer, it seems to bid defiance to cold. I have often found it active in the midst of the frost which forms under the bark of trees near water.

*Læmophlæus biguttatus* Say. Very common.

„ *modestus* Say.

*Brontes dubius* Fabr.

*Cryptophagus maculatus* Melsh.

*Engis quadrimaculatus* Say.

*Dacne fasciata* Fabr. I find both species of *Dacne* very abundant; I

„ *heros* Say. think they go under the ground for their winter quarters. I once turned up quite a number of *D. heros* with my trowel from the loose soil under the end of a fallen hickory covered with woody fungus, from which I had taken many specimens the previous summer, and have often found a dozen at a time, closely packed together under the bark at the root of stumps or decaying trees, seemingly enticed from their hiding-place by the warmth of the sun.

*Ichyrus quadripunctatus* Oliv. Rare.

*Tritoma unicolor* Say.

*Languria Mozardi* Latr.

*Mycetophagus punctatus* Say.

„ *flexuosus* Say.

*Dermestes pulchra* Lec. Under moss. Very rare.

- Lucanus dama* Thunb. One specimen, ♀.  
*Dorcus parallelus* Say. In rotten wood.  
*Platycerus quercus* Web. In rotten wood.  
*Ceruchus piceus* Web. I obtained in Dec. 1861, 23 specimens, mostly males, from a small piece of half decayed wood.  
*Passalus cornutus* Fabr. Very common and apparently as active as in warm weather.  
*Dicerca spreta* Gory. Two specimens taken under moss, in February.  
*Adelocera pennata* Fabr.  
     " *marmorata* Fabr.  
     " *aurorata* Say. One specimen.  
     " *impressicollis* Say.  
     " *avita* Say. One specimen.  
*Alaus oculatus* Linn.  
*Elater linteus* Say.  
     " *Sayi* Lec. One specimen.  
     " *hepaticus* Melsh.  
     " *rubricus* Say.  
*Drasterius dorsalis* Say. Under stones.  
     " *vespertinus* Fabr. Under stones.  
*Melanotus communis* Schön.  
     " *fissilis* Say.  
     " *tenax* Say.  
*Limonius cylindriciformis* Say.  
*Corymbites sulcicollis* Say.  
*Eros mundus* Say. One specimen.  
*Photinus corrusca* Linn. Quite common under bark.  
*Thaneroclerus sanguineus* Say. Under bark.  
*Clerus ichneumoneus* Fabr. In almost incredible number in the interstices of the rough bark of red-oak. I have not met with it in the summer season.  
*Clerus nigripes* Say.  
*Necrobia rufipes* DeGeer.  
*Oedionychis vians* Illig.  
*Chrysomela viride* Melsh. One specimen under moss.  
*Megilla maculata* DeGeer. Very common.  
*Adonia parenthesis* Say.  
*Endomychus biguttatus* Say.  
*Oplocephalus bicornis* Oliv. Very common.

- Platydemia americana* Lap.  
 „ *clypeatus* Hald.  
 „ *piceilabrum* Melsb.  
 „ *elliptica* Fabr.  
 „ *ruficornis* Sturm.  
*Diaperis hydni* Fabr.  
*Uloma culinaris* Linn.  
 „ *impressa* Melsb.  
*Tenebrio castaneus* Knoch.  
*Iphthinius pennsylvanicus* DeGeer. Very common.  
*Xylopinus anthracinus* Knoch. Very common.  
*Phellidius cornutus* Fabr.  
*Boletophagus corticola* Say.  
*Penthe obliquata* Fabr. Common.  
*Anthicus cinctus* Say. Under bark.

In addition to the above list, there have been found a number of minute species, mostly of the families *Staphylinidæ* and *Curculionidæ* which I have not as yet been able to name. The only Longicorn I have met with, is a single specimen of *Cyrtophorus niger* Lec., or a variety of *Clytus albofasciatus* Gory, I am not decided as to the true name. It was found at some little depth in the soft wood of a decaying elm, in as neat a receptacle as can be imagined.

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#### A description of several new HYMENOPTERA.

BY EDWARD NORTON.

##### TENTHREDO Hartig.

*T. californicus*, n. sp. ♀. Length 0.36. Ex. wings 0.72 inch.  
 ♀. White; mostly black above. Antennæ hardly longer than thorax, each joint more slender than the preceding; third longer than fourth; clypeus deeply emarginated, labrum retracted, truncate; mandibles with two strong inner teeth; antennæ above, a large spot enclosing ocelli, a spot on back of head, thorax and tergum, except at sides, black; two dots below ocelli, four lines on mesothorax forming two V-spots, the scutellum and the remainder of the body including the margin of tergum, white; a slender line on all the legs above (except on tarsi), the tips of tibiae and tarsi, black; claws ferruginous; wings hyaline, stigma and costa pale.

California. (Coll. Ent. Soc. Phila.)

The form of the labrum and the posterior coxæ a little longer than ordinary, seem to separate this from *Tenthredo*, but in other respects it appears to agree with this genus.

**FENUSA** Leach.

*F. curtus* n. sp. ♀. Length 0.14. Ex. wings 0.32 inch.

♀. Black, abdomen piceous. Antennæ toward tip, the labrum and mandibles piceous; a smooth fovea between antennæ; tegulæ and abdomen piceous; thorax shining, smooth, each segment of abdomen depressed toward apex; legs ochraceous; coxæ and femora (except at tip) black; apical joints of tarsi blackish; wings semitransparent, stigma and costa darker, nervures black.

Pennsylvania. (Coll. Ent. Soc. Phila.)

**CRÆSUS** Leach.

*C. latitarsus*, n. sp. ♀.

(*Cræsus septentrionalis*, H. Cat. Length 0.32. Ex. wings 0.72 inch.

♀. Black; base of tibiæ white. Antennæ as long as body; body shining blue-black; a crescent-shaped elevation between antennæ; clypeus emarginate; labrum, mandibles and palpi piceous; mesothorax with confluent longitudinal punctures, pleura dull with dense punctures; legs black, anterior pairs piceous toward tip; posterior trochanters and basal half of all the tibiæ white; posterior tibiæ enlarged and flattened toward tip: first joint of tarsi still wider, flattened, longer than the remaining tarsi, its edges elevated to a rim on both sides; wings hyaline, a little smoky below stigma; a dot in middle of second and third submarginal cells.

Pennsylvania. (Coll. Ent. Soc. Phila.) Mass. (Harris Collection.)

The name *septentrionalis* was previously given to a European species.

**LYDA** Fabr.

*Sec. 1. Anterior tibiæ with one side spur.*

*L. abdominalis* n. sp. ♀. Length 0.50. Ex. wings 0.96 inch.

♀. Black, with rufous abdomen. Two basal joints of antennæ black, tipped with yellow (remainder wanting), two oval spots on vertex, partly enclosed by two crescents, which join on the occiput two lines extending downwards on each outer edge of head to mandibles, two oval spots outside of antennæ and a transverse line on clypeus, white; mandibles rufous, palpi pale; tegulæ, a spot in front and one beneath, V-spot, scutell, dot at base of metathorax, a spot before each of the coxæ on the pectus, pale straw color; abdomen rufous, the apical segment above and a spot on the two apical segments beneath, black; legs at base black, ferruginous below tips of the femora; tips of tibiæ and apical joints of tarsi blackish; tips of coxæ and a line on femora beneath white; wings large, faintly smoky, stigma lengthened, not rounded, ferruginous; line within costa opened into a Y, upper limb longest.

Pennsylvania. (Coll. Ent. Soc. Phila.)

*Sec. 2. Anterior tibiae without side spur; third joint of antennae as long as the two following.*

*L. fasciata* n. sp. ♀ ♂. Length 0.32. Ex. wings 0.72 inch.

♀. Color black, abdomen and wings fasciate. Antennae little longer than thorax, two basal joints shining, transversely pitted or rugose; a minute dot over each eye, a spot from between antennae to tip of clypeus, middle of mandibles and tips of palpi, yellow; tegulae, two spots forming a V on prothorax, scutellum, a transverse line on base of metathorax, spots on the sides of the third, fourth, fifth and sixth segments and apex of abdomen and four transverse lines on the same segments beneath, yellow; legs yellow, varying to ferruginous, the coxae except at tip and a spot on the femora, black; a broad blackish band covers two-thirds of superior, and most part of inferior wings; tips of wings hyaline, stigma large, rounded, black; nervure within costal space curving to the inner nervure near the middle, tip of marginal cell bluntly rounded.

♂. This has not any V on the thorax, nor transverse line on metathorax; no yellow spot on third segment of abdomen and no black spots on femora. The basal joints of antennae are yellow beneath.

Pennsylvania. (Coll. Ent. Soc. Phila.)

The female has four discoidal cells, the first submarginal receiving two recurrent nervures.

#### **IBALIA** Latr.

*I. ensiger* n. sp. ♀. Length 0.56. Ex. wings 0.92 inch.

♀. Black, with ferruginous abdomen. Occiput striate toward ocelli, striae transverse below ocelli, a curved ridge from ocelli passing beneath antennae; face below antennae coarsely punctured; prothorax elevated and slightly emarginate, mesothorax transversely striate, with three longitudinal depressions; scutellum large, scabrous, with an elevated rim, produced into two teeth behind, a spine on each side of metathorax, with divergent carinae; a smooth shining spot beneath wings, beneath which is an angulate depression and a large striate longitudinal fossula; pectus transversely striate; abdomen ferruginous, smooth, shining, knife-shaped; ovipositor of the same color, about two-thirds the length of abdomen; legs black, shining; posterior tibiae rough with confluent punctures; second joint of posterior tarsi with a long blunt spine; apical joints of tarsi obscurely ferruginous; wings hyaline, apical ends semitransparent, blackish.

Pennsylvania. (Coll. Ent. Soc. Phila.)

This agrees in many respects with *Ibalia anceps* of Say, which I have never seen.

On the synonyms of *CIMBEX AMERICANA*.

BY EDWARD NORTON.

*Cimbex Americana*.

*Cimbex Americana* Leach, Zool. Misc. 3, 104. ♂. Harris Cat. Mass. ♂. St. Fargeau, Mon. Tenth. 33, 87. Geo. ♂.

*Cimbex decem-maculata* D'Urban, Can. Zool. 18, 7085. Can. ♀.

Var. *Cimbex Ulmi* Peck, Harris Cat. Mass. ♀. Emmons, Nat. Hist. N. York, Agric. 5, 101. New York. ♀ ♂.

*Cimbex Viardi* St. Fargeau. Ann. Soc. Ent. de France, 2, 454. N. Am. ♀.

*Cimbex luctifera* Klug, Verhandl. &c. Berlin, 1, 85. Georgia. ♀ ♂ !!

Var. *Cimbex LaPortei* St. Farg. Ann. Soc. Ent. de France, 2, 454. N. Am. ♂.

*Cimbex Kirbyi* St. Farg. Hym. 4, 672. N. Am. ♂.

For the convenience of the student and collector, these are specified as varieties, the *C. Americana* having clear wings, the *var. Ulmi* dark wings and the *var. LaPortei* the abdomen mostly rufous.

After a careful examination of a number of specimens I think that they are not sufficiently distinct in their character to be called separate species. The wings of *C. Americana* are hyaline with the radial cellule and apex of both pair fuscous; while the wings of *C. Ulmi* and *C. LaPortei* vary from obscure semitransparent to dark violaceous, but are darkest at the same points. In the form and marking of the body and legs, neither males nor females differ materially. Of the females both *Americana* and *Ulmi* have six, eight and ten spots on the abdomen, in different specimens; sometimes they are six in number, on the sides of the 4th, 5th and 6th segments (all round, all oval and both round and oval), in two cases seven in number (dark wings, Coll. Ent. Soc. Phil.), four spots on one side and on the other three; often eight in number (3rd, 4th, 5th and 6th), and often ten in number (3rd, 4th, 5th, 6th and 7th), differing very much in size and form, and in two cases (one clear and the other dark wings) nearly meeting on the 3rd, 4th and 7th, and coalescing on the 5th and 6th segments. These last I take to be the *Cimbex luctifera* of Klug. The color of the abdomen varies in some cases from steel-blue through shades of purple to brick-red. These last are all males and dark winged.

Through the kindness of Mr. Shurtleff, of Cambridge, Mass., I have examined two males of *C. LaPortei*, one of *Ulmi*, and two females of *Ulmi* with blue (8-spotted) abdomens, all bred from pupæ found together beneath a willow tree on which he had previously seen them feeding.

Beside the red abdomen I find no peculiarity in the dark winged specimens which does not occur in those having clear wings.

It may be that the *C. luctifera* of Klug will prove to be a different



species when specimens are procured from Georgia. He describes what he thinks to be the male as having six spots on the abdomen. Some of my specimens have all the peculiarities of his female.

It is quite desirable that those who have an opportunity, should describe the larvæ of this insect which they may find, especially in the more northerly states, where the clear winged specimens are abundant. The elm, the linden and the willow and doubtless other trees are frequented by them.

The localities of specimens examined are as follows:—

With clear wings, N. H., Mass., Can., L. Sup.	Geo. (Leach.)
With dark wings, Mass., Ct., N. Y., N. J., Pa., Md.	N. Am. (St. Farg.) Geo. (Klug.)
With red abdomen, Mass., Ct., N. Y.	N. Am. (St. Farg.)

For which I am indebted to the Cambridge Museum, Harris Collection, Messrs. Shurtleff, Sanborn, Gray, Edwards, Clemens, Beadle, Akhurst, Uhler and Ent. Soc. Phila.

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A Catalogue of the described species of several families of HYMENOPTERA  
inhabiting North America.

BY E. T. CRESSON.

Fam. CYNIPIDÆ.

CYNIPS Linn.

- aciculata* Osten Sacken, Proc. Entom. Soc. of Phila. 1, p. 56. Illinois.  
*bicolor* Harris, Treatise on Insects, p. 399. Massachusetts.  
*confluentus* Harris, Treatise on Insects, p. 397. Massachusetts.  
*dichlocerus* Harris, Treatise on Insects, p. 399. Massachusetts.  
*nubilipennis* Harris, Treatise on Insects, p. 398. Massachusetts.  
*oneratus* Harris, Treatise on Insects, p. 398. Massachusetts.  
*quercus arbor* Fitch, Fifth Report on the Noxious Insects of New York, p. 29.  
*quercus batatus* Fitch, Fifth Report on the Noxious Insects of New York, p. 30.  
*quercus centricola* Osten Sacken, Proc. Ent. Soc. Phila. 1, p. 58. Washington, D. C.  
*quercus cælebs* Osten Sacken, Proc. Ent. Soc. Phila. 1, p. 61. Washington, D. C.  
*quercus ficus* Fitch, Fifth Report on the Noxious Insects of New York, p. 32.  
*quercus fusiformis* Osten Sacken, Proc. Ent. Soc. Phila. 1, p. 61. Washington, D. C.  
*quercus futilis* Osten Sacken, Proc. Ent. Soc. Phila. 1, p. 64. Washington, D. C.  
*quercus inanis* Osten Sacken, Proc. Ent. Soc. Phila. 1, p. 58. New York (Fitch).  
*quercus irregularis* Osten Sacken, Proc. Ent. Soc. Phila. 1, p. 65. Washington, D. C.  
*quercus lana* Fitch, Fifth Report on the Noxious Insects of New York, p. 34.  
*quercus modesta* Osten Sacken, Proc. Ent. Soc. Phila. 1, p. 66. Washington, D. C.

*querens nigra* *Osten Sacken*, Proc. Ent. Soc. Phila. 1, p. 66. Washington, D. C.  
*querens palustris* *Osten Sacken*, Proc. Ent. Soc. Phila. 1, p. 63. Washington, D. C.  
*querens papillata* *Osten Sacken*, Proc. Ent. Soc. Phila. 1, p. 64. Washington, D. C.  
*querens phellos* *Osten Sacken*, Proc. Ent. Soc. Phila. 1, p. 70. Washington, D. C.  
*querens pisum* *Fitch*, Fifth Report on the Noxious Insects of New York, p. 38.  
*querens tuber* *Fitch*, Fifth Report on the Noxious Insects of New York, p. 26.  
*querens tubicola* *Osten Sacken*, Proc. Ent. Soc. Phila. 1, p. 60. Washington, D. C.  
*querens verrucarum* *Osten Sacken*, Proc. Ent. Soc. Phila. 1, p. 62. Washington, D. C.  
*seminator* *Harris*, Treatise on Insects, p. 399. Massachusetts.  
*semipiceus* *Harris*, Treatise on Insects, p. 400. Massachusetts.

#### DIPLOLEPIS Geoff.

*armatus* *Say*, Boston Journal of Natural History, vol. 1, p. 266. Indiana.  
*devius* *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*flagellatus* *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*impatiens* *Say*, Boston Journal of Natural History, vol. 1, p. 267. Indiana.  
*impolitus* *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*pedatus* *Say*, Boston Journal of Natural History, vol. 1, p. 267. Indiana.  
*potentillæ* *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*quinquelineatus* *Say*, Boston Journal of Natural History, vol. 1, p. 266. Indiana.  
*stigmatus* *Say*, Boston Journal of Natural History, vol. 1, p. 268. Indiana.

#### CALLASPIDIA Dahl.

*querens globulus* *Fitch*, Fifth Report on the Noxious Insects of New York, p. 30.

#### BIORHIZA Westw.

*nigra* *Fitch*, Fifth Report on the Noxious Insects of New York, p. 2. N. York.

#### PHILONIX Fitch.

*fulvicollis* *Fitch*, Fifth Report on the Noxious Insects of New York, p. 3. N. Y.  
*nigricollis* *Fitch*, Fifth Report on the Noxious Insects of New York, p. 3. N. Y.

#### SYNOPHRUS Hartig.

*leviventris* *Osten Sacken*, Proc. Entom. Soc. Phila. 1, p. 57. Washington, D. C.

#### AYLAX Hartig.

*futilis* *Osten Sacken*, Proc. Ent. Soc. Phila. 1, p. 64. Washington, D. C.

#### FIGITES Latr.

*Chinquapin* *Fitch*, Fifth Report on the Noxious Insects of New York, p. 40.  
*impatiens* *Say*, Boston Journal of Natural History, vol. 1, p. 268.  
*mellipes* *Say*, Boston Journal of Natural History, vol. 1, p. 269. Indiana.  
*melisoma* *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition.  
*pini* *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.

#### ÆGILIPS Haliday.

*obtusilobus* *Osten Sacken*, Proc. Entom. Soc. of Phila. 1, p. 68. Washington, D. C.

#### AMBLYNOTUS Hartig.

*petiollicola* *Osten Sacken*, Proc. Entom. Soc. of Phila. 1, p. 67. Washington, D. C.

**SAROTHEUS** Reinhardt.

? *pisum* *Osten Sacken*, Proc. Entom. Soc. Phila. 1, p. 59. Washington, D. C.

**IBALIA** Latr.

*anceps* *Say*, Long's Second Expedition, vol. 2, p. 325. Arkansas.

*ensiger* *Norton*, Proceedings Entomological Society of Phila., vol. 1, p. 200. Penn.

*maculipennis* *Harris*, Catalogue. *Hald.* Proc. Acad. Nat. Sci. vol. 3, p. 127. Penn.

*scalpellator* *Westwood*, in Guérin's Magazin de Zoologie, 1837. Georgia.

Fam. **EVANIIDÆ**.**EVANIA** Fabr.

*appendigaster*? *Latr.* *Harris*, Catalogue of the Insects of Massachusetts, 2nd ed.

*Cubæ* *Guérin*, Iconographie du Règne Animal, vol. 3, p. 405; tab. 65, fig. 1. Cuba.

*fascialis* *Spinola*, Revue Zoologique, 1842, p. 188. Mexico.

*lævigata* *Oliv.* Enc. Méth. 6, p. 453. *Guér.* Icon. Rég. Anim. vol. 3, p. 405. Cuba.

*petiolata* *Fabr.* Entomologia Systematica, Suppl. 242. Insulis Americæ (W. Ind?).

*Pœyi* *Guér.* (Hyptiam) Rev. Zool. 1843, 335. *LaSagra*, Hist. Cuba, Ins. pl. 18, fig. 3.

*Servillei* *Guérin*, (Hyptiam) Revue Zoologique, 1843, p. 335. St. Domingo.

*thoracica* *Blanch.* Histoire Naturelle des Insects (Dumeril's edit.), 4, 299. Carolina.

*unicolor* *Say*, Long's Second Expedition, vol. 2, p. 320. United States.

**HYPTIAM** Illig.

*thoracicum* *Shuckard*. Entomologist, p. 120. North Carolina.

**BRACHYGASTER** Leach.

*reticulatus* *Say*, Boston Journal of Natural History, vol. 1, p. 223. Indiana.

**FOENUS** Fabr.

*Barnstoni* *Westwood*, Trans. Entom. Soc. of London, 1851, p. 226. Hudson's Bay.

*Guildingii* *Westwood*, Trans. Entom. Soc. of London, vol. 3, p. 257. St. Vincent's.

*irritator* *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.

*Kirbii* *Barnston*, MSS. *Westw.* Trans. Ent. Soc. Lond. 1851, 219. Hudson's Bay.

*rufipictus* *Westwood*, Trans. Entom. Soc. of London, 1851, p. 219. St. Vincent's.

*tarsatorius* *Say*, Long's Second Expedition, vol. 2, p. 321. Pennsylvania.

**LYCOGASTER** Shuckard.

*pullatus* *Shuckard*, Entomologist, p. 124. North Carolina.

**PELECINUS** Latr.

*clavator* *Latr.* *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition.

*thoracicus* *Klug*, Germar Zeitschrift für Entomologie, 3, p. 384; tab. 2, fig. 5. Mex.

**STEPHANUS** Jurine.

*bicolor* *Westwood*, Trans. Entom. Soc. of London, vol. 3, p. 276. Georgia.

*rufipes* *Say*, Long's Second Expedition, vol. 2, p. 324. Pennsylvania.

**AULAGUS** Jurine.

- Abbettili* Westwood, Trans. Entom. Soc. of London, vol. 3, p. 266. Georgia.  
*fasciatus* Say, Contributions to MacLurian Lyceum, vol. 1, p. 67. Ohio.  
*hyalinipennis* Westwood, Trans. Entom. Soc. of London, vol. 3, p. 265. Mexico.  
*niger* Shuckard, Entomologist, p. 124. North America.  
*Resutoriveras* Barnston, MSS. Westw. Tr. Ent. Soc. Lond. 1851, 224. Hudson's Bay.

Fam. **ICHNEUMONIDÆ.****RHYSSA** Grav.

- levigata* Brullé, Hyménoptères, p. 78; tab. 40, fig. 2. North America.

**PIMPLA** Fabr.

- fasciornis* Brullé, Hyménoptères, p. 104. Guadeloupe.  
*humida* Say, Boston Journal of Natural History, vol. 1, p. 224. Indiana.  
*marginella* Brullé, Hyménoptères, p. 107. Cuba.  
*melanocephala* Brullé, Hyménoptères, p. 99. North America.  
*?petiolatus* Say, Boston Journal of Natural History, vol. 1, p. 224. Indiana.  
*rufipes* Brullé, Hyménoptères, p. 102. North America.

**RASSUS** Grav.

- gibbosus* Say, Boston Journal of Natural History, vol. 1, p. 250. Indiana.  
*limitaris* Say, Boston Journal of Natural History, vol. 1, p. 250. Indiana. Missouri.  
*sanctus* Say, Boston Journal of Natural History, vol. 1, p. 249. Indiana.

**METOPHUS** Panz.

- cordiger* Brullé, Hyménoptères, p. 120. Carolina.  
*pinatorius* Bosc. Brullé, Hyménoptères, p. 120. Carolina.

**PELTASTES** Illig.

- pollinatorius* Say, Boston Journal of Natural History, vol. 1, p. 245. Ind. Penn.

**RANCUS** Fabr.

- equatus* Say, Boston Journal of Natural History, vol. 1, p. 247. Indiana.  
*fugitivus* Say, Boston Journal of Natural History, vol. 1, p. 247. Indiana.  
*nervulus* Say, Boston Journal of Natural History, vol. 1, p. 246. Indiana.

**ACENITUS** Latr.

- amoenus* Harris, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*decorus* Say, Boston Journal of Natural History, vol. 1, p. 248. Indiana.  
*mellous* Say, Boston Journal of Natural History, vol. 1, p. 249. Indiana.  
*stigmapterus* Say, Long's Second Expedition, vol. 2, p. 325. North-west Territory.

**OPHION** Fabr.

- analis* Say, Contributions to MacLurian Lyceum, vol. 1, p. 75. Indiana.  
*atricolor* Oliv. Encyclopédie Méthodique. Insects, 8, p. 511. Carolina.

*bifoveolatus* *Brullé*, Hyménoptères, p. 138. North America.  
*bilineatus* *Say*, Contributions to Maclurian Lyceum, vol. 1, p. 75. Indiana.  
*brachiator* *Say*, Boston Journal of Natural History, vol. 1, p. 240. Indiana.  
*cecropis* *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*chloris* *Oliv.* Encyclopédie Méthodique, Insects, 8, p. 509. North America.  
*dentulatus* *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*emarginatus* *Say*, Contributions to Maclurian Lyceum, vol. 1, p. 76. Indiana.  
*geminatus* *Say*, Contributions to Maclurian Lyceum, vol. 1, p. 76. Indiana.  
*glabratus* *Say*, Boston Journal of Natural History, vol. 1, p. 239. Indiana.  
*lateralis* *Brullé*, Hyménoptères, p. 141. Carolina.  
*mundus* *Say*, Boston Journal of Natural History, vol. 1, p. 239. Indiana.  
*purgatus* *Say*, Boston Journal of Natural History, vol. 1, p. 238. Indiana.  
*relictus* *Fabr.* Entomologia Systematica, Supplement, p. 236. North America.  
*rugesus* *Brullé*, Hyménoptères, p. 138. North America.  
*vitticollis* *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.

#### **PANISCUS** Grav.

*rufus* *Brullé*, Hyménoptères, p. 155. Mexico. Cuba.

#### **CAMPOPLEX** Grav.

†*Arcticus* *Curtis*, Ross's Second Voyage, Appendix, p. lxii. Arctic America.  
*xanthogaster* *Brullé*, Hyménoptères, p. 159. North America.

#### **ANOMALON** Grav.

*attractus* *Say*, Boston Journal of Natural History, vol. 1, p. 241. Indiana.  
*densatus* *Say*, Boston Journal of Natural History, vol. 1, p. 243. Indiana.  
*divaricatus* *Say*, Boston Journal of Natural History, vol. 1, p. 244. Florida.  
*ejuncidus* *Say*, Boston Journal of Natural History, vol. 1, p. 241. United States.  
*flavicoerne* *Brullé*, Hyménoptères, p. 171; tab. 40, fig. 4. Philadelphia.  
*flavicoernis* *Say*, Western Quarterly Reporter, vol. 2, p. 73. Arkansas.  
*flavipes* *Brullé*, Hyménoptères, p. 170. Mexico.  
*humerales* *Say*, Contributions to Maclurian Lyceum, vol. 1, p. 74. Indiana.  
*laterale* *Brullé*, Hyménoptères, p. 175. North America.  
*lineatulus* *Say*, Boston Journal of Natural History, vol. 1, p. 244. Indiana.  
*mellipes* *Say*, Contributions to Maclurian Lyceum, vol. 1, p. 74. Indiana.  
*nigrovarium* *Brullé*, Hyménoptères, p. 172. North America.  
*recurvus* *Say*, Boston Journal of Natural History, vol. 1, p. 243. Indiana.  
*sexlineata* *Say*, Contributions to Maclurian Lyceum, vol. 1, p. 74. Indiana.

#### **CRYPTUS** Fabr.

*annulipes* *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*attractus* *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*bucephalus* *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*calipterus* *Say*, Boston Journal of Natural History, vol. 1, p. 234. Mexico.  
*cestus* *Say*, Boston Journal of Natural History, vol. 1, p. 234. Indiana.  
*conquisitor* *Say*, Boston Journal of Natural History, vol. 1, p. 232. Indiana.  
*calceatus* *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*cardinalis* *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*crescentus* *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.

*elyti* Harris, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*disceitergus* Say, Boston Journal of Natural History, vol. 1, p. 231. Indiana.  
*duetilis* Say, Boston Journal of Natural History, vol. 1, p. 233. Indiana.  
*ectypus* Harris, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*facetus* Harris, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*facilis* Harris, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*fasciipennis* Brullé, Hyménoptères, p. 191. Cuba.  
*fusciipennis* Brullé, Hyménoptères, p. 189. Mexico.  
*grallator* Say, Boston Journal of Natural History, vol. 1, p. 236. Indiana.  
*hispæ* Harris, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*irroratorius* Fabr. Systema Piezatorum, p. 72. Insulis Americæ (West Indies?).  
*isochromus* Harris, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*laxus* Harris, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*leucotelus* Harris, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*mellipes* Harris, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*micropterus* Say, Boston Journal of Natural History, vol. 1, p. 238. Pennsylvania.  
*nuneius* Say, Boston Journal of Natural History, vol. 1, p. 237. Pennsylvania.  
*orbis* Say, Boston Journal of Natural History, vol. 1, p. 231. Indiana.  
*palmapectus* Harris, Catalogue of the Insects of Massachusetts, 2nd edition.  
*pleuriticus* Harris, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*pleurivinctus* Say, Boston Journal of Natural History, vol. 1, p. 235. U. States.  
*polyspeirus* Harris, Catalogue of the Insects of Massachusetts, 2nd edition.  
*recurvulus* Harris, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*retentor* Bosc. Brullé, Hyménoptères, p. 192. Carolina.  
*semirufus* Brullé, Hyménoptères, p. 195. North America.  
*spinulosus* Harris, Catalogue of the Insects of Massachusetts, 2nd edition.  
*subclavatus* Say, Boston Journal of Natural History, vol. 1, p. 237. United States.  
*subspinosus* Harris, Catalogue of the Insects of Massachusetts, 2nd edition.  
*tenellus* Say, Boston Journal of Natural History, vol. 1, p. 233. Pennsylvania.  
*velox* Harris, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*versicolor* Harris, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*viduatorius* Fabr. Syst. Piez. p. 70. Kirby, Fauna Bor. Amer. 4, p. 259. N. Amer.  
*xanthostigma* Brullé, Hyménoptères, p. 190. Mexico.

#### CRYPTOCENTRUM Kirby.

*lineolatum* Kirby, Fauna Boreali-Americana, vol. 4, p. 260: tab. 6, fig. 1. N. Am.

#### PHYGADEUON Grav.

*Planosse* Fitch, Second Report on the Noxious Insects of New York, p. 269. N. Y.

#### MESOSTENUS Grav.

*lituratus* Brullé, Hyménoptères, p. 208. Cuba.  
*melanoleucus* Brullé, Hyménoptères, p. 204. Mexico.  
*spinarius* Brullé, Hyménoptères, p. 227. Carolina.  
*tricolor* Brullé, Hyménoptères, p. 209. Cuba.  
*trilineatus* Brullé, Hyménoptères, p. 207. Hayti.

#### MESOCHORUS Grav.

*fusciipennis* Brullé, Hyménoptères, p. 250. Carolina.

*vitreus* *Walsh*, Insects injurious to vegetation in Illinois. p. 36, fig. 9. Illinois.

#### **HEMITELES** Grav.

*fuscipennis* *Brullé*, Hyménoptères, p. 257. Hayti.

#### **JOFFA** Fabr.

*alternans* *Brullé*, Hyménoptères, p. 278. Mexico.

*conica* *Brullé*, Hyménoptères, p. 286. Mexico.

*maurator* *Brullé*, Hyménoptères, p. 287. Carolina. Philadelphia.

*suturalis* *Brullé*, Hyménoptères, p. 281. Mexico.

#### **TROGUS** Grav.

*atratus* *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition.

*exesorius* *Brullé*, Hyménoptères, p. 298. Carolina. Philadelphia.

*ischiodicus* *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition.

*nubilipennis* *Hald.* Proc. Acad. Nat. Sci. of Phila. vol. 3, p. 127. (Pennsylvania.)

*obsidianator* *Brullé*, Hyménoptères, p. 299. Carolina. Philadelphia.

#### **ICHNEUMON** Linn.

*albipectus* *Brullé*, Hyménoptères, p. 306. Cuba.

*aleatorius* *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition.

*ales* *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition.

*alternator* *Say.* *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition.

*anxifer* *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition.

*atratus* *Fabr.* Ent. Syst. 2, 179. *Brullé*, (Rhyssa) Hymén. tab. 40, fig. 1. N. Amer.

*baoulus* *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition.

*basiator* *Say.* *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition.

*bisquatus* *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition.

*bifasciatus* *Say*, Contributions to Maclurian Lyceum, vol. 1, p. 72. Indiana.

*brevicinctus* *Say*, American Entomology, plate 22. (United States.)

*brevinctor* *Say.* *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition.

*calitergus* *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition.

*centrator* *Say*, American Entomology, plate 22. United States.

*cinger* *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition.

*comptus* *Say*, Boston Journal of Natural History, vol. 1, p. 229. United States.

*concinus* *Say*, Contributions to Maclurian Lyceum, vol. 1, p. 68. Indiana.

*conscitator* *Say.* *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition.

*detritus* *Brullé*, Hyménoptères, p. 302. Carolina.

*devinator* *Say*, American Entomology, plate 22. N. W. Territory. Missouri.

*dimelapsus* *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition.

*duplicatus* *Say*, Boston Journal of Natural History, vol. 1, p. 230. North America.

*emarginatus* *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition.

*emarginatus* *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition.

*eurostus* *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition.

*extaricus* *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition.

*exulans* *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition.

*famelicus* *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition.

*ferrugator* *Kirby*, Fauna Boreali-Americana, vol. 4, p. 258. North America.

*ferrugator* *Fabr.* *Brullé*, (Joppa) Hyménoptères, p. 295. Carolina. Philada.

- flavus* Fabr. Ent. Syst. 2, 179. *Guér. et Perch.* (Ophion) Ins. Hym. plate 3. Cuba.
- grandis* Brullé, Hyménoptères, p. 300. Philadelphia.
- hilaris* Say, Contributions to MacLurian Lyceum, vol. 1, p. 71. Indiana.
- hospes* Harris, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.
- impiger* Harris, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.
- inquisitor* Say, Contributions to MacLurian Lyceum, vol. 1, p. 71. Indiana.
- irritator* Fabr. Ent. Syst. 2, 164. Brullé, (Ephialtes) Hymén, p. 81. Carolina.
- jaculator* Linn. Kirby, (Fœnus) Fauna Boreali-Americana. vol. 4. p. 258. N. Am.
- juvundus* Brullé, Hyménoptères, p. 303. North America.
- lætus* Brullé, Hyménoptères, p. 303. Carolina.
- Lariv* Curtis, Ross's Second Voyage, Appendix, p. lxi: pl. A. fig. 1. Arctic Amer.
- leucopterus* Harris, Catalogue of the Insects of Massachusetts, 2nd edition.
- ligatus* Harris, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.
- lunator* Fabr. Ent. Syst. 2, 162. Emmons, (Pimpla) Ins. of N. Y. Ag. 5, pl. 1. N. Am.
- lucosus* Say. Harris, Catalogue of the Insects of Massachusetts, 2nd edition.
- macrurus* Linn. Mant. P. 540. Drury, Insects, 1, p. 97, pl. 43, fig. 5. New York.
- malacus* Say, Contributions to MacLurian Lyceum, vol. 1, p. 72. Indiana.
- melisomus* Harris, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.
- mellilabrus* Harris, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.
- mellipectorius* Harris, Catalogue of the Insects of Massachusetts, 2nd edition.
- metathoracicus* Harris, Catalogue of the Insects of Massachusetts, 2nd edition.
- milvus* Harris, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.
- moderator* Linn. Syst. Nat. 2, p. 935. Fabr. Fauna Grœnlandica, p. 198. Greenland.
- morio* Fabr. Entomologia Systematica, 2, p. 180. North America.
- moralus* Say, Contributions to MacLurian Lyceum, vol. 1, p. 73. Indiana.
- multor* Harris, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.
- nexus* Say, Boston Journal of Natural History, vol. 1, p. 229. United States.
- niger* Brullé, Hyménoptères, p. 302. North America.
- nigratorius* Fabr. Systema Piezatorum, p. 55. North America.
- orbitalis* Harris, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.
- otiosus* Say, Contributions to MacLurian Lyceum, vol. 1, p. 69. Indiana.
- paratus* Say, Contributions to MacLurian Lyceum, vol. 1, p. 68. Indiana.
- pectoralis* Say, Contributions to MacLurian Lyceum, vol. 1, p. 72. Indiana.
- pennator* Fabr. Entomologia Systematica, 2, p. 155. Georgia.
- petiolatus* Harris, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.
- plantaris* Harris, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.
- platiscrus* Harris, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.
- polyturator* Drury, Insects, vol. 2, p. 77: pl. 40, fig. 4. Jamaica.
- ptereles* Say, Contributions to MacLurian Lyceum, vol. 1, p. 71. Indiana.
- puleher* Brullé, Hyménoptères, p. 304. North America.
- residuus* Say, Contributions to MacLurian Lyceum, vol. 1, p. 73. Indiana.
- ruiventris* Brullé, Hyménoptères, p. 301. North America.
- sericeus* Fabr. Entomologia Systematica. 2, p. 189. Guadeloupe.
- spatiosus* Harris, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.
- stolophorus* Harris, Catalogue of the Insects of Massachusetts, 2nd edition.
- succinctus* Brullé, Hyménoptères, p. 301. North America.
- surreularis* Harris, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.
- tuturalis* Say, Boston Journal of Natural History, vol. 1, p. 226. North America.
- tibialis* Brullé, Hyménoptères, p. 300. Philadelphia.



*trichocerus* Harris, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*unifasciatus* Say, American Entomology, plate 22. Middle States.  
*van* Harris, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*vinetus* Say, Contributions to Maclurian Lyceum, vol. 1, p. 70. Indiana.

#### BRACON Fabr.

*argutator* Say, Boston Journal of Natural History, vol. 1, p. 253. Indiana.  
*crocator* Kirby, Fauna Boreali-Americana, vol. 4, p. 261. North America.  
*dischrous* Brullé, Hyménoptères, p. 398. North America.  
*dorsator* Say, Boston Journal of Natural History, vol. 1, p. 253. Indiana.  
*erythræus* Brullé, Hyménoptères, p. 401. Cuba.  
*erythrogaster* Brullé, Hyménoptères, p. 401. North America.  
*eurygaster* Brullé, Hyménoptères, p. 400. Philadelphia.  
*exhalans* Say, Contributions to Maclurian Lyceum, vol. 1, p. 77. Indiana.  
*explorator* Say, Boston Journal of Natural History, vol. 1, p. 259. Indiana.  
*fuscipennis* Brullé, Hyménoptères, p. 396. Mexico.  
*hebetor* Say, Boston Journal of Natural History, vol. 1, p. 252. Indiana.  
*honestor* Say, Contributions to Maclurian Lyceum, vol. 1, p. 78. Indiana.  
*insecator* Say, Boston Journal of Natural History, vol. 1, p. 257. Indiana.  
*ligator* Say, Long's Second Expedition, vol. 2, p. 323. Pennsylvania.  
*lineola* Brullé, Hyménoptères, p. 397. Carolina.  
*maturor* Harris, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*mellitor* Say, Boston Journal of Natural History, vol. 1, p. 256. Indiana.  
*niger* Brullé, Hyménoptères, p. 395. Mexico.  
*operculatus* Harris, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*orbita* Brullé, Hyménoptères, p. 399. North America.  
*palpatorius* Harris, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*paululor* Say, Boston Journal of Natural History, vol. 1, p. 257. Indiana.  
*pectinator* Say, Boston Journal of Natural History, vol. 1, p. 251. United States.  
*populator* Say, Long's Second Expedition, vol. 2, p. 323. United States.  
*pullator* Say, Boston Journal of Natural History, vol. 1, p. 257. Indiana.  
*rugator* Say, Boston Journal of Natural History, vol. 1, p. 251. Indiana.  
*rugulosus* Say, Boston Journal of Natural History, vol. 1, p. 255. Indiana.  
*scrutator* Say, Boston Journal of Natural History, vol. 1, p. 254. Indiana.  
*stigmator* Say, Long's Second Expedition, vol. 2, p. 323. North-west Territory.  
*thoracicus* Say, Boston Journal of Natural History, vol. 1, p. 260. Indiana.  
*tibiator* Say, Long's Second Expedition, vol. 2, p. 322. Pennsylvania.  
*transversus* Say, Boston Journal of Natural History, vol. 1, p. 255. Indiana.  
*trilobatus* Say, Boston Journal of Natural History, vol. 1, p. 259. Indiana.  
*truncator* Say, Contributions to Maclurian Lyceum, vol. 1, p. 78. Indiana.  
*vestitor* Say, Boston Journal of Natural History, vol. 1, p. 254. Mexico.  
*viator* Say, Boston Journal of Natural History, vol. 1, p. 258. Indiana.

#### SYNGASTER Brullé.

*erythromelas* Brullé, Hyménoptères, p. 458. North America?  
*rufiventris* Brullé, Hyménoptères, p. 458. North America.

#### ROGAS Essnbeck.

*flaviceps* Haliday (Doryctes), Entomological Magazine, vol. 4, p. 43. St. Vincent's.

*Quasstor Haliday* (Heterospilus), Entomological Magazine, 4, p. 47. St. Vincent's.

#### **HELCON** Esenbeck.

*dentipes* *Brullé*, Hyménoptères, p. 479. North America.

#### **AGATHIS** Latr.

*hematodes* *Brullé*, Hyménoptères, p. 495. Philadelphia.

*liberator* *Bosc.* *Brullé*, Hyménoptères, p. 502. Carolina.

*ornata* *Say*, Boston Journal of Natural History, vol. 1, p. 226. Indiana.

*polita* *Say*, Boston Journal of Natural History, vol. 1, p. 225. Indiana.

*semirubra* *Brullé*, Hyménoptères, p. 494. Philadelphia.

#### **MICROGASTER** Latr.

*americanus* *Latr.* Encyclopédie Méthodique, Insecta, 10, p. 42. Martinique.

*bisstigma* *Say*, Boston Journal of Natural History, vol. 1, p. 264. Indiana.

*calliptera* *Say*, Boston Journal of Natural History, vol. 1, p. 264. Indiana.

*carpata* *Say*, Boston Journal of Natural History, vol. 1, p. 263. Indiana.

*congregata* *Say*, Boston Journal of Natural History, vol. 1, p. 262. Pennsylvania.

*ensiger* *Say*, Boston Journal of Natural History, vol. 1, p. 260. Indiana.

*mellipes* *Say*, Boston Journal of Natural History, vol. 1, p. 261. Indiana.

*militaris* *Walsh*, Insects injurious to vegetation in Illinois. p. 37, fig. 10. Illinois.

*unicolor* *Curtis*, Ross's Second Voyage, Appendix, p. lxii. Arctic America.

*xylina* *Say*, Boston Journal of Natural History, vol. 1, p. 262. Indiana.

*zonaria* *Say*, Boston Journal of Natural History, vol. 1, p. 263. Indiana.

#### **SIGALPHUS** Latr.

*basilaris* *Say*, Long's Second Expedition, vol. 2, p. 322. Pennsylvania.

*patulus* *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.

*puppis* *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.

*sericeus* *Say*, Long's Second Expedition, vol. 2, p. 321. North-west Territory.

*socius* *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.

*tibialis* *Hald.* Proceedings Academy of Natural Sciences Phila. 4, p. 203. Penn.

#### **CHELONUS** Jurine.

*corrugatus* *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.

*dislocatus* *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.

*lunatus* *Hald.* Proceedings Academy of Natural Sciences Phila. 4, p. 203. Penn.

*parvus* *Say*, Boston Journal of Natural History, vol. 1, p. 265. Indiana.

*sericeus* *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.

*sobrinus* *Hald.* Proceedings Academy of Natural Sciences Phila. 4, p. 203. Penn.

#### **ALYSIA** Latr.

*fuscipennis* *Brullé*, Hyménoptères, p. 516. North America.

*pallipes* *Say*, Contributions to MacLurian Lyceum, vol. 1, p. 77. Indiana.

*ridibunda* *Say*, Contributions to MacLurian Lyceum, vol. 1, p. 77. Indiana.

## Description of two new species of TERMITES from Texas.

BY S. B. BUCKLEY.

**TERMES (EUTERMES) CINEREUS** n. sp.— Abdomen and upper surface of the thorax cinereus with lighter and darker shades; head of the *nasuti* brownish-black and of the *worker* yellowish-brown; antennæ light brown, legs and the under surface of the head and thorax pale yellow.

*Worker.* Head oval, anteriorly slightly narrowed, with a circular and somewhat convex elevation in front; epistoma a little convex, sloping towards the front edge which is semicircular; vertex depressed, somewhat smooth; occiput rounded and projecting over the prothorax; antennæ 15-jointed, hairy, clavate, shorter than the head, first joint cylindrical and longer than the second, third still shorter and the remainder about the length of the second, being shaped like truncated cones with their bases forward, apical joints egg-shaped; eyes a little convex, large, brownish-black and placed on the front sides above and anterior to the base of the antennæ; mandibles not projecting beyond the epistoma, dark brown, somewhat triangular, a little curved at the apex, at and near which are two strong teeth, a third small tooth is near the middle of the inner margin, outer margin curved, under surface of the head flat with a slight sinus extending from the mentum backwards, mentum emarginate in front, ligula four parted, the two inner segments nearly double the size of the two outer, all obtuse, with a few scattering hairs, palpi clavate, geniculate, trochanter, femur and tibia smooth, tarsi clothed with rigid hairs; prothorax semicircular and raised above the meso- and metathorax and narrower than either the head or abdomen, mesothorax longer than the prothorax, semicircular; abdomen egg-shaped, proportionably large, somewhat flat above, under surface and near the anus hairy; appendices abdominal and anal wanting. Length 0.14, head 0.04, abdomen 0.07 inch.

*Nasuti.* Antennæ 9-jointed, basal joint twice the length of the second, remaining joints nearly equal, egg-shaped and slightly hairy; head smooth, somewhat pyriform, constricted a little in front of the middle, backhead rounded and projecting backwards over the thorax; fronthead, anterior to the constriction, nearly one half smaller than the portion back of it, and raised around the middle, sloping gradually front and backwards; the upper anterior portion prolonged into a snout, below the base of which the front is compressed at the sides about one-third of the distance back to-

wards the strangulation; the front edge has a small tooth or projection near its centre, above and below which the margin is curved inwards, the upper curve projecting slightly over the lower; snout nearly cylindrical, being a little smaller near the middle and rather abruptly pointed; eyes small, convex, placed above the base of the antennæ near the anterior margin of the head; thorax, abdomen and legs similar to those of the worker. Size,  $\frac{1}{3}$ – $\frac{1}{4}$  smaller than the worker, the snout being about  $\frac{1}{4}$  of the entire length of the head.

It was about sunset on the 22nd of October 1860, when I first saw this species, in San Saba County, Texas, in a field where both worker and nasuti were carrying home seeds of grasses and weeds. They marched in dense columns along pathways leading to a hole near the base of a stump, into which they entered. Others were marching outward in search of provendor. The nasuti are about one-fourth to one-fifth of the entire community. They dwell in the ground where they have rooms, seldom more than one to two inches long, connected by tunnels. They march with heads erect and thrown backwards over the thorax, carrying their loads with their mandibles.

Subsequently, while engaged in the Geological Survey of that and the adjoining Counties, I met them frequently. After rains—which are of rare occurrence in that climate—they make semicylindrical tubes which lie on the surface of the ground to the length of from three to six inches. These arched ways sometimes intersect each other, being connected with chambers below. They rarely work by day above the surface, and never in the bright sunshine. In June 1861, in Llano County, I saw them carrying home dry segments of post-oak leaves of the preceding years growth. Here again the nasuti worked in common with the rest of the tribe. They must have preferred these dry leaves, because green leaves and grass were abundant on every side. They are all quite active, moving faster than any species of Termites which I have seen.

What is the use of the snout of the nasuti? It may be used to excavate dirt, but does not seem to be well adapted for battle as it is not of sufficient sharpness to penetrate other insects easily, nor does the size of the nasuti indicate that they were made for soldiers, but it is probable that both forms unite for the defence of the whole tribe, and likewise labour in common for its support.

**TERMES TUBIFORMANS** n. sp.— Head and thorax pale yellow; legs white; abdomen above dirty white with lighter and darker shades, its sides

and under surface yellowish-white; mouth, the apices and inner edges of the mandibles light brown; antennæ pale yellow.

*Worker.* Head oval somewhat egg-shaped in outline seen from above, narrowing in front, convex and smooth above, slightly hairy posteriorly, somewhat depressed, rounded and projecting a little over the thorax; front raised, the back portion of the elevation triangular and depressed; epistoma rounded above and protruding slightly in front, eyes large, convex, brownish-black, placed in front midway between the lower side and the top near the base of the antennæ; antennæ clavate, 18-jointed, hairy, first and second joint longer than the third, succeeding joints nearly equal, under surface of the head has a sinus extending back from the mentum, labial palpi small, clavate, maxillary palpi geniculate, clavate, the apical joint longest, mandibles 3-toothed, two sharp teeth at the point with a furrow between their bases, caused by the extension of the teeth into elevations on the mandibles, the other tooth near the middle, short, with a broad base affording a long cutting surface, outer edge of the mandible curved; thorax slightly hairy, semicircular, narrower than either the head or abdomen; trochanters and femurs smooth with a very few scattering hairs, lower part of the tibia and all of the tarsi hairy, claws light brown; abdomen egg-shaped, slightly compressed above and below, smooth, sparsely hairy.

Length 0.16, head 0.04, 0.08 inch.

*Soldier.* Antennæ 11-jointed, first joint longest, the next a little shorter and the third still shorter, remaining joints nearly equal and somewhat egg-shaped, mandibles smooth, sharp pointed and crossing near their apices, light brown about one-third of their length near the base, the remainder dark brown, a small tooth about midway on the inner margin; head oval, smooth above, a little hairy in front, rounded back and extending slightly over the thorax, the under surface has a deep sinus posteriorly; there are two light brown spots (eyes?) in front, one just above the base of each antenna; thorax, abdomen and legs similar to those of the worker. Length 0.14, head including mandibles 0.08, mandibles 0.04.

*Female?* Head above pale yellow, beneath, thorax, margins and sides of the abdomen and legs white, the remainder of the abdomen ash-colored or a dirty white, mouth and mandibles light brown, mandibles triangular, 3-toothed, teeth smaller and sharper than those of the worker, ocelli near the middle of the sides of the head, eyes in front above and anterior to the base of the antennæ; front prominent, raised and slightly hairy; posterior part of the head rather flat at top, rounded backwards but not projecting over the thorax, smooth; thorax subcylindrical, upper side covered

with rudimentary wings, enlarged backwards into the abdomen; legs short; abdomen oblong, smooth, segments nine, largely furrowed or wrinkled; posteriorly rounded and obtuse.

These females (?) were quite numerous (one-eighth to one-tenth of the whole community) in a large nest on the top of a hill in the northern part of San Saba County, late in the autumn of 1860. Again the following spring, I found them with the wings little if any enlarged; they crept rather slowly, endeavouring to escape into the inner recesses of the den. In these nests I also found forms evidently in a growing state, head rudimentary or none, legs none, anterior portion small and rather pointed; abdominal or posterior part large and obtuse.

Lampasas, San Saba and the adjoining counties, Texas.

This species often has clay tubes four to six inches high above the surface of the ground, interlacing and crossing each other at various angles, and generally attached to grass or bushes; these tubes are very thin and from one-third to one-half an inch in diameter; beneath these cylinders they also have cells in the ground. At other times where the ground is very dry, hard and unsuited to form tubes, they construct an irregular clay mass three to four inches high, which is filled with winding passages. Again I have found them beneath rocks on hill tops, in cells from which there were holes leading to other cells below. In overturning rocks to find ants, it sometimes happened that both ants and termites would have their nests under the same rock; then the ants on discovering the termites would invariably seize them and drag or endeavor to drag them away, nor would the termites make any resistance. At first I thought it strange that the ants—which are very numerous in that section—did not exterminate the termites which are also very common. I have often caught ants and placed them at the entrance of a termites' den, especially these tube-makers, but the ants on seeing the termites on guard, would always run away, and in one instance when I thrust an ant within the door, the termites seized it and dragged it back within.

*TERMES FLAVIPES* Kollar, is the most abundant species of the genus in Texas. Specimens from that locality are similar to those obtained in the vicinity of Philadelphia.

## STATED MEETING, JUNE 9.

President NEWMAN in the Chair.

Fourteen members present.

## REPORT OF COMMITTEE.

The Committee on Mr. Grote's paper read May 12th, reported in favor of its publication in the Proceedings of the Society.

## DONATIONS TO CABINET.

100 specimens of COLEOPTERA, 4 HYMENOPTERA, and 2 HEMIPTERA (for exchange), from Robert Nuttall.

40 specimens of HYMENOPTERA (*Lophyrus abietis*, *Selandria rosæ*, *Macrophya albomaculatus*, *Macrophya flavicoræ*, *Macrophya niger*, *Tenthredo rufopectus*, *Strongylogaster rufocinctus*, *Strongylogaster terminalis*, *Ophion bilineatus*, *Ophion purgatus*), from Edward Norton.

34 specimens of COLEOPTERA (*Helodes nebulosus*, *Lycus cruentus*, *Clytus undulatus*, *Chrysomela adonidis*, *Coccidula lepida*), from E. T. Cresson.

20 specimens of COLEOPTERA (*Callida smaragdina*, *Peltis ferruginea*, *Carpophilus floralis*, *Elatér apicatus*, *Horia Stansburii*, *Crymodes discicollis*, *Crossidius pulchellus*, *Acmæops bivitatta*, *Leptura cribripennis* (bl'k var.), *Coscinoptera vittigera*), from John Pearsall.

9 specimens of COLEOPTERA (*Cicindela hemorrhagica*, *Lebia utripes*, *Epicauta pharmacites*, *Pyrota Germari*, *Scaphinus sphaericollis*), from Dr. Samuel Lewis.

1 specimen of ORTHOPTERA (*Acheta vittatus*), from J. Frank Knight.

## DONATIONS TO LIBRARY.

*Prairie Farmer* (Chicago, Ill.), Nos. 20 to 23 of Vol. 9. From the Editors.

*Proceedings of the Boston Society of Natural History*, Vol: 8, pages 305 to 330, and Vol. 9, pages 1 to 32. From the Society.

*Smithsonian Report for 1858*. Deposited by Dr. Samuel Lewis.

*Classification of the Coleoptera of North America (completion of Part 1), by J. L. Le Conte, M. D.* From the Smithsonian Institution.

*Descriptions of new species of Scolopendra, in the collection of the Academy (of Natural Sciences), by Horatio C. Wood, Jr.* From the Author.

#### WRITTEN COMMUNICATIONS.

A letter was read from Col. Craig Biddle, dated Philadelphia, May 16, 1862, acknowledging his election as a Corresponding Member of the Society.

A communication was read from Mr. Evett, reporting the capture of the following Insects during May and June:—

“*Cicindela consentanea* (black variety of *patruea*), on the Railroad back of Gloucester, New Jersey.

*Cotalpa lanigera*, on the Willow.

*Nicagus obscurus* and *Cremastochilus Harrisii*, on the eastern shore of the Delaware River above Red Bank, N. J. Have not found these insects flying when the weather is cold and windy.

*Tabuda fulvipes*. Collected 5 male specimens of this beautiful insect in New Jersey during the early part of last month (May), 4 of which were captured a short distance back of Gloucester and the other in a wood near Red Bank. This insect seems to frequent shady situations, where it is exceedingly tame; when disturbed it flies but a few feet and immediately squats to the ground, remains perfectly quiet and allows itself to be captured without further trouble to either party. It appears that this very interesting species is not generally known to inhabit North America. Walker described and figured it in his *Diptera Saundersiana*, with the locality unknown to him, and Lœw and Osten Sacken in their work on North American Diptera now being published by the Smithsonian Institution, do not mention the genus *Tabuda* as being found in North America, which is a strong proof of a fresh and valuable discovery. This circumstance has led me more firmly to the belief that New Jersey can yet reward a careful collector with much valuable material, even within a few hours walk of Philadelphia.”

The following paper was presented for publication in the Proceedings: “Descriptions of certain species of Diurnal Lepidoptera found within the United States, figured in Doubleday’s Genera but undescribed, by Wm. H. Edwards.”

And was referred to a Committee.

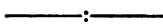


## NEW BUSINESS.

Dr. G. H. Horn presented his resignation as a member of the Committee on Coleoptera, which was read and accepted.

## ELECTION.

Mr. Henry Feldman was unanimously elected a member of the Committee on Coleoptera, in the place of Dr. Horn resigned.



## Additions to the Catalogue of U. S. LEPIDOPTERA.

BY AUG. R. GROTE.

Under this title I propose to describe such species of U. S. Lepidoptera which may be found to be unenumerated in the "Catalogue of the described Lepidoptera of North America" published by the Smithsonian Institution; with reference also to subsequent publications.

In case any of my species should prove to be synonyms, I will cheerfully acknowledge them as such and give the priority to the rightful author.

My thanks are due here to Mr. E. Richard Stráznicky of the Astor Library N. Y. for his kind attentions.

## NOCTUÆ.

Gen. *CHERSOTIS* Boisd.

*C. plecta* Linn. United States and Europe.

Anterior wings dark brown, silky, with a broad grayish band on the upper margin, extending from the base about three-quarters of the entire length of the wing. At the base a deep black streak, and a second one running as far as the outer grayish band, encloses two grayish spots of which the outer one is bean-shaped and the inner spherical. Posterior wings white; fringes light. Head, tegulæ and body grayish; thorax dark brown. Exp.  $1\frac{1}{2}$  inch.

*Obs.* This species, which is not uncommon in the vicinity of New York, I find on comparison to be identical with the European *C. plecta*. The position for this genus in the Catalogue is immediately after *Noctua*.

Gen. *DYPTERYGIA* Steph.

*D. pinastri* Linn. United States and Europe.

Anterior wings brownish-black with two irregular black transverse lines

near the base. Beyond the outer line are two spherical spaces with black borders, and at the lower corner of the outer margin is a grayish patch continued on the hind margin and bordered on the inside by an irregular black line which runs up to the upper margin of the wing. Posterior wings dark gray with a darker wavy line and discal spot more apparent on the under surface. Head and tegulæ brownish-black; thorax light and body dark gray, latter with a row of brownish tufts on the upper surface. Exp.  $1\frac{1}{2}$  inches.

*Obs.* A critical comparison of this species, taken in the vicinity of New York, with specimens of the European *D. pinastri* has perfectly satisfied me of their specific identity.

Gen. **HELIOTHIS** Ochs.

Antennæ simple, threadlike. Palpi as long as the head, inclined upwards, third article minute. Anterior wings inconspicuously marked; posterior pair with a dark band on the outer margin.

**H. umbrosus** nov. sp.

Anterior wings yellowish-gray crossed by several indistinct irregular darker shaded lines. Discal spot blackish beyond which is a row of minute black dots one on each nervule running parallel with the outer margin of the wing and connected with each other by a faint waved line the curvatures turned inward toward the base of the wing; fringes dark. Posterior wings yellowish-white without markings except a broad blackish band running parallel with the outer margin and which is partly interrupted near the centre by a space of a similar color to the rest of the wing; fringes white. Under surface of the wings pale showing the black discal spot on the anterior wings plainly, outside of which is a blackish transverse band and a small blackish streak near the upper margin. Under surface of posterior wings immaculate except a faint blackish shade near the outer margin. Head, thorax and tegulæ yellowish-gray, darker than the anterior wings. Body grayish, clothed at the sides with whitish hairs, and darkening towards the tip. Exp.  $1\frac{1}{2}$  inches.

A male; taken on Long Island, N. Y.

*Obs.* Approaches to the European *H. armigera* which species has however a discal mark on the posterior wings and is otherwise specifically distinct. It appears also from the description of *H. exprimens* Walker, C. B. M. Noct. p. 687, to have some resemblance with that species, but the expressions "(alæ anticæ) orbiculari et reniformi magnis ferrugineo marginatis" and "(alæ posticæ) litura discali" do not apply to the species I have just described.

## STATED MEETING, JULY 14.

President NEWMAN in the Chair.

Fourteen members present.

## REPORT OF COMMITTEE.

The Committee on Mr. Edwards' paper read June 9th, reported in favor of its publication in the Proceedings of the Society.

## DONATIONS TO CABINET.

4 specimens of HEMIPTERA (*Arma placidum* Uhler (Type), *Pentatomia graminicolor*), 3 COLEOPTERA (*Cryptohypnus funebris*, *Sphenosthetus serripennis*, *Monohammus dentator*), from John Pearsall.

4 specimens of HEMIPTERA (*Plociamera nodosum*, *Tingis hyalina*, *Pirates picipes*, *Ranatra fusca*), 2 COLEOPTERA (*Canthon vigilans*), from James H. B. Bland.

3 specimens of DIPTERA (*Trypeta longipennis* ♂ ♀, *Tabuda fulvipes* ♂), from William Evett.

1 specimen of DIPTERA (*Tetanocera flavescens*), from Charles Wilt.

## DONATIONS TO LIBRARY.

*Prairie Farmer* (Chicago, Ill.), Nos. 24 to 26 of Vol. 9 and No. 1 of Vol. 10. From the Editors.

## WRITTEN COMMUNICATIONS.

A letter was read from the Smithsonian Institution, acknowledging the receipt of Vol. 1, No. 2 of the Proceedings of the Society.

The following paper was presented for publication in the Proceedings: "Catalogue of the described species of North American Hymenoptera, by E. T. Cresson."

And was referred to a Committee.

A communication was read from Mr. Evett, reporting the capture of the following Insects, in the vicinity of Philadelphia, during June and July:— *Anomala lucicola* on the Pine, *Hypophlaeus thoracicus*, *Hypulus trifasciatus* and *Goes debilis* on the Black Oak, *Goes pulverulentus* and *Purpuricenus humeralis* on Reed Street wood-wharf, *Callidium amosum*

on the Mulberry, *Leptura rubrica* on flowers, *Hæmonia Melsheimeri* on the edge of water, *Trupanea quadrata* in the open fields, and *Neuronea semifasciata* under a log.

#### NEW BUSINESS.

Mr. J. Frank Knight offered the following, which were unanimously adopted:—

*Resolved*, That the thanks of the Society be presented to Mr. Charles Wilt, for his kindness and liberality in granting the free use of the room in which the Society has held its meetings during the past two years and a half, and whereby the interests of the Society have been greatly advanced.

*Resolved*, That a copy of the foregoing Resolution be communicated to Mr. Wilt.

The Chairman then announced that the next Stated Meeting of the Society will be held in the new Hall at No. 518 South 13th Street, on the 11th of next month (August).

—:—

Descriptions of certain species of DIURNAL LEPIDOPTERA found within the United States, figured in Doubleday's Genera but undescribed.

BY WM. H. EDWARDS.

- |                      |                        |
|----------------------|------------------------|
| 1. ARGYNNIS ASTARTE. | 2. MELITAEA CHALCEDON. |
| 3. MELITAEA ANICIA.  | 4. TIMETES CORESIA.    |

#### ARGYNNIS ASTARTE Doubleday.

*Male*. Expands 2 inches. Upper side uniform tawny; hind margin of both wings edged by a fine black line preceded at a small interval by a second, on which rests a series of black lunules that enclose tawny spots; primaries have, as in *Aphrodite*, a transverse row of rounded black spots, a zigzag band, a mark like the letter P inverted in the arc, three bent transverse lines in the cell and a sub-median black line. Secondaries have a transverse row of small black spots and another of narrow black crescents; in the cell a recurrent black line. Under side inclining to buff; primaries lightly tinged with brownish-red at base and on inner margin, with

same spots as above, but faintly colored; the marginal spots next apex, to the number of five or six, are silvered and two or three silver spots precede them on the costa. Secondaries have the belt between the two outer rows of silver spots pale buff and immaculate; the basal part a little mottled with pale red-brown, sometimes greenish; the silver spots are twenty-one in number, viz: a sub-marginal row of seven; a second row of seven, long oval, each edged with black; a third row of four and three spots next the base; costa at base and abdominal margin lightly silvered.

*Female.* Expands 2½ inches; like the male except that the marginal lines and lunules are heavier and are connected so as to present one broad band.

Oregon; California.

MELITÆA CHALCEDON Doubleday: female figured.

*Male.* Expands 2 to 2½ inches. Upper side black; primaries have four rows of spots parallel to the hind margin; the marginal small, rounded, deep red; the second row small, yellow; the third yellow and bifid on costal margin, the inner branch being red; the fourth yellow more or less replaced by red; within the cell, a broad yellow bar; a triangular spot of same color next base, and a sub-median bar; sometimes between the first two are red streaks; costal edge brick-red.

Secondaries have a marginal row of deep red spots, sometimes obsolete, preceeded by three rows of yellow; the spots of the middle one smallest, of the last elongate; towards the base four large yellow spots.

Under side: primaries brick-red; a submarginal row of yellow lunules, obsolete next inner angle; a second row of rounded yellow spots; a small spot on costa, and a bar edged before with black, outside the arc; in the cell, three wavy, transverse, black lines.

Secondaries covered with bands of red, a shade deeper than on primaries, and of yellow; the hind margin red; a sub-marginal row of yellow lunules; a second of rounded red spots, each more or less ringed with yellow; a third of large yellow spots, cut unequally towards the costa by a black line; next this, a red band; and above, on a red ground, five yellow spots, besides one at the base on costa; abdominal margin yellow.

Body black above, beneath yellow; a dorsal and two lateral rows of yellow points; the segments of the abdomen fringed with red; legs, palpi and antennæ red.

*Female.* Expands 2½ inches; primaries broader than in male and much more rounded on hind margin; on the upper side, except at the margin,

yellow replaces the red and the spots are more conspicuous; the color of the under side rather more vivid than in the male.

Rocky Mountains; California.

**MELITÆA ANICIA** Doubleday.

Expands about 2 inches.

*Male.* Upper side black, nearly covered by brick-red and pale yellow spots, most of which are disposed in transverse rows; primaries have the marginal row of red lunules; the second of smaller lunules, pale red tinged with yellow; the third of rounded yellow spots; the fourth of large red angular spots and bifid on the costa, the inner branch being yellow; a red spot on the arc within, followed by a yellow bar and two red spots, the one next the base tinged with yellow; on inner margin a yellow bar precedes the bifid row and at the base are two or three small red spots; costal edge red.

Secondaries have the first and second rows as in primaries; the third, of large, lunular, red spots; and the fourth, of yellow, elongate spots more or less replaced by red; sometimes the third and fourth rows are united on costal margin; a red bar borders the arc within, and in the cell are two yellow spots, sometimes a red spot between them, and a third yellow spot on abdominal margin; fringe of both wings alternate white and black.

Under side: primaries red, a shade paler than above; hind margin bordered by red lunules, preceded by small yellow lunules and a row of rounded yellow spots; upon the sub-costal nervure rest two abbreviated yellow bars, one without, and the other within the cell, each edged on either side by a wavy black line; another such line nearer the base, in the cell, and one below on inner margin.

Secondaries covered with alternate bands of red and yellow; the hind margin red; a sub-marginal row of yellow lunules; a second of red spots edged with yellow; a third of angular yellow spots divided unequally by a black line; preceding this, a red band, and beyond to the base, upon a red ground, four large yellow spots and another at the base on the costa.

Body black above, the segments of the abdomen fringed with red; beneath yellow; legs and palpi red; antennæ and club dull red.

*Female:* a little larger than male; color less vivid; primaries broader with hind margin more rounded as in *Chalcedon*.

Kansas; Rocky Mountains; California.

The under side of *Anicia* is very like *Chalcedon*. It is distinct from *Editha*, of Boisduval, with which it has been confounded.

**TIMETES CORESIA** Doubleday.*Marpesia Zerynthia* Hubner.Expands 2 $\frac{3}{4}$  inches.

Primaries triangular; costa much arched towards apex; hind margin sinuate; secondaries terminating in a long straight tail, with a shorter tail near the anal angle.

Upper side dark velvety brown, a shade lighter at the base; hind margin yellowish-brown; a sub-apical dark patch on primaries; both wings have a sub-marginal black line, on the inner side of which is a faint brown line; they are nearly obsolete on primaries; at the anal angle, a black lunule; tail tipped with white.

Under side: the outer half of both wings glossy brown with a violet lustre, dentated on the inner side and edged with black; preceeding this is a narrow common band of reddish-brown that extends from middle of costa of primaries to the anal angle; beyond to base, satin-white, with two fine wavy yellowish lines running nearly across the wings, and a similar abbreviated line near the base of primaries; along the hind margin, a reddish line; the anal lunule edged with white atoms and a second dark lunule in the brown space near the other.

Body above dark brown, below white; palpi white; antennæ and club dark brown, the latter tipped with reddish.

Texas.

**C H A R T E R**  
**AND**  
**BY-LAWS**  
**OF THE**  
**ENTOMOLOGICAL SOCIETY**  
**OF**  
**PHILADELPHIA.**

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**PHILADELPHIA:**  
**PRINTED FOR THE SOCIETY.**  
**1862.**





# CHARTER

OF THE

## ENTOMOLOGICAL SOCIETY

OF

### PHILADELPHIA.

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WHEREAS, it is represented to the Legislature that a number of persons have formed a Society in Philadelphia, by the name of "The Entomological Society of Philadelphia," for the improvement and advancement of Entomological Science and the investigation of the character and habits of insects, many of which in their ravages are destructive of the products of agriculture, and in order that the purposes thereof may be carried into better effect,

Therefore,

SECTION 1. Be it enacted by the Senate and House of Representatives of the Commonwealth of Pennsylvania, in General Assembly met, and it is hereby enacted by the authority of the same, That James Ridings, Thomas B. Wilson, William S. Wood, Charles Wilt, Thomas Cox, Thomas B. Ashton, John Pearsall, Louis Schneider, James W. M'Allister, William Wolter, James H. B. Bland, Robert Jack, Charles J. Wood, George Newman, Ezra T. Cresson, John Meichel, Henry Feldman, William Evett, Samuel H. Shinn, George Hill, William Wenzel, William Kay, J. Frank Knight, Henry Ulke, Joseph Dunkerley, Hugh Dunbar, William S. Pine, Louis C. Gropengeisser, John Knight, F. Englehardt, Theodore Bunte, James H. M'Farland, William S. Ballantine, George H. Horn, Horace B. Mitchell, James H. Smith, Charles A. Blake, James D. Dowling, Robert Nuttel, Samuel Lewis, Jacob Ennis, William Lumbray, Thomas Daly, Jr., William A. Royal, J. D. Wingate, Daniel Wiest, George Hewston, Charles F. Parker, Robert Frazer, John M'Meichel, George W. Gallierd, Edgar Cowan, Joseph Moore, Jonathan Roberts Lowrey, Joseph Rex, William F. Smith, Peter C. Shannon, G. W. Wimley, and such other persons as now are or hereafter may become Members of said Society, agreeably to its rules and regulations, shall be and they are hereby constituted and created a body corporate, by the name and title of "The Ento-

mological Society of Philadelphia," and by the above name the said Corporation shall have perpetual succession, have a common seal, with power to change the same, shall be able to make contracts and capable in law and equity of purchasing, receiving, holding and conveying all estates, real, personal or mixed, for the use and benefit of the said Corporation, and that may be required for the above purposes: *Provided*, That the clear yearly value or income of the said estate, shall not at any time exceed the sum of five thousand dollars.

SECTION 2. That the said Society shall consist of Members resident and corresponding, who shall be elected upon such terms and under such regulations as the Society shall determine; but the right of voting, holding office and transacting business, shall be confined solely to resident Members.

SECTION 3. That the officers of the Society shall consist of a President, a Vice-President, a Corresponding Secretary, a Recording Secretary and a Treasurer, whose respective duties shall be determined by the Society, and for that and all other purposes, the said Corporation shall have the power to make and adopt any By-laws, and to establish and put in execution all such Regulations for the government or management of the said Society, as shall be deemed expedient and not inconsistent with the Constitution and Laws of the United States, and of the Commonwealth of Pennsylvania.

JOHN ROWE,

Speaker of the House of Representatives.

L. W. HALL,

Speaker of the Senate.

Approved the eleventh day of April, Anno Domini, one thousand eight hundred and sixty-two.

A. G. CURTIN.

OFFICE OF THE SECRETARY OF THE COMMONWEALTH,  
HARRISBURG, April, 19th, 1862.  
Pennsylvania, ss.

I do hereby certify, that the foregoing and annexed is a full, true and correct copy of the original Act of the General Assembly, entitled "An Act to incorporate The Entomological Society of Philadelphia," as the same remains on file in this office. In testimony whereof, I have hereunto set my hand, and caused the Seal of the Secretary's Office to be affixed, the day and year above written.

SAMUEL B. THOMAS, [ L. S. ]

Deputy Secretary of the Commonwealth.

# BY-LAWS

OF THE

# ENTOMOLOGICAL SOCIETY

OF

# PHILADELPHIA.

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## CHAPTER I.

**ART. I.** The Society shall be called The Entomological Society of Philadelphia, and is instituted for the improvement and advancement of Entomological Science, and the investigation of the character and habits of Insects.

**ART. II.** The Society shall consist of Members resident and corresponding.

**ART. III.** The right of voting, holding office and transacting business, shall be confined solely to resident Members; corresponding Members have the privilege of attending the meetings, and taking part in scientific discussions.

**ART. IV.** The common seal of the Society shall be the title of the Association, surrounding the words "Founded 1859" "Incorporated 1862," with a figure of Dynastes Tityus and the motto "Festina lente" occupying the centre.

**ART. V.** The Society shall grant to each Member resident and corresponding, a Certificate of Membership, as follows:—

<b>THE ENTOMOLOGICAL SOCIETY OF PHILADELPHIA has elected</b>		
a	Member of the Association, this	day of      A. D.
	<i>Corresp. Sec.</i>	<i>President.</i>
	[ L. S. ]	
	<i>Record. Sec.</i>	<i>Vice-President.</i>

**ART. VI.** The Officers of the Society shall consist of a President, a Vice-President, a Corresponding Secretary, a Recording Secretary, and a Treasurer, who shall be elected annually on the second Monday in December.

## CHAPTER II.

## MEMBERS, RESIDENT AND CORRESPONDING.

ART. I. All candidates for admission into the Society as resident Members, must be proposed and vouched for in writing by two Members, who shall be required to have some personal acquaintance with the person they propose, and shall also be required to state the character, profession, qualifications and usual place of residence of the candidates. All propositions for resident Membership must be made at a Stated Meeting, and be balloted for at the next Stated Meeting, the affirmative votes of three-fourths of the Members present, shall be necessary to elect a candidate.

ART. II. All propositions for admission into the Society as corresponding Members, must be made in writing by two Members at a Stated Meeting, and be balloted for at the same Meeting, the affirmative votes of a majority of the Members present, shall be necessary to elect a candidate.

ART. III. No person residing in Philadelphia, unless he be an officer of the Army or Navy, can be elected a corresponding Member, nor shall he continue as such after he shall have removed permanently to Philadelphia.

ART. IV. No person shall be entitled to the privileges of Membership, until he shall sign the following obligation :—

In becoming a resident Member of THE ENTOMOLOGICAL SOCIETY OF PHILADELPHIA, I promise to conform myself to its Charter, By-laws and Regulations, and in testimony thereof I do hereunto subscribe my name.

ART. V. Every proposition for resident Membership must be accompanied by the fee of Initiation, which, in case of non-election or withdrawal, shall be returned to the proposed; but if any Member elect shall not sign the above obligation within six months from the date of his election into the Society, the fee of Initiation shall be forfeited, and the election become void.

ART. VI. If any person shall be balloted for and rejected, or his name withdrawn previous to the ballot, no note of said rejection or withdrawal shall be made on the Minutes of the Society.

## CHAPTER III.

## CONTRIBUTIONS.

ART. I. The Initiation fee for resident Members shall be one dollar.

ART. II. Every resident Member shall be subject to a semi-annual contribution of fifty cents, payable to the Treasurer in June and December.

**ART. III.** No pecuniary contribution shall be required from corresponding Members.

## CHAPTER IV.

### RESIGNATION AND EXPULSION OF MEMBERS.

**ART. I.** Any Member shall have leave to resign, on giving notice thereof in writing, provided, he produces a certificate from the Treasurer, that all arrears due from him to the Society have been discharged, and provided also, that there be no charge pending against him.

**ART. II.** Members may be expelled from the Society for any flagrant act of disrespect to the Society, its Officers or Members, or for wilful disregard of the Charter, By-laws and Regulations.

**ART. III.** No Member shall be expelled from the Society, unless three-fourths of the Members present agree thereto, at least ten Members being present, and then not without having an opportunity of being heard in his own defence.

**ART. IV.** No person thus expelled, shall, under any circumstances, be received as a candidate for re-election.

## CHAPTER V.

### DUTIES OF OFFICERS.

**ART. I.** The duties of the President shall be, to preside at all meetings of the Society, he shall preserve good order and decorum, regulate debate, nominate the chairman of all Committees, and call special meetings of the Society, at such times as he may deem it necessary, or at the request of any three Members in writing.

**ART. II.** The duties of the Vice-President shall be the same as those of the President, during his absence.

**ART. III.** The duties of the Recording Secretary shall be, to take and preserve correct Minutes of the proceedings of the Society, to read all communications made by resident Members, to notify all resident Members of their election, and all Committees of their appointment, to keep a correct list of the resident Members of the Society, with the date of their election, resignation or death, and to lay before the Society, on the second Monday in December, a written report of its transactions during the preceding year.

**ART. IV.** The duties of the Corresponding Secretary shall be, to maintain the correspondence of the Society, to acknowledge all donations made

by those who are not Members, to notify all corresponding Members of their election, and to keep a correct list of all such elections, with the dates, also, of any resignations or deaths that may occur; he shall keep correct copies of all letters written by him on business of the Society, and lay before the Society, on the second Monday in December, a written report of his transactions during the preceding year.

ART. V. The duties of the Treasurer shall be, to take charge of the funds of the Society, and to attend to the collection and payment of monies; but no monies are to be paid by him, except on an order from the President, attested by the Recording Secretary; he is to keep a clear and detailed statement of all receipts and expenditures, which is to be laid before the Society, on the second Monday in December of each year.

## CHAPTER VI.

### COMMITTEES.

ART. I. There shall be nine standing Committees, viz.: 1, the Committee on Coleoptera; 2, on Lepidoptera; 3, on Neuroptera and Orthoptera; 4, on Hemiptera and Apterata; 5, on Hymenoptera; 6, on Diptera; 7, on Library; 8, on Publication; and 9, on Collecting Fund: each to consist of three Members, who shall be elected, annually, on the second Monday in December.

ART. II. In appointing all other Committees, the President shall nominate the first Member of it, who is to nominate the second, the second a third, and in like manner successively, until the number agreed upon be complete.

ART. III. All Committees must report in writing, and every report must be signed by a majority of the Committee.

## CHAPTER VII.

### CABINET.

ART. I. The keys of the cases containing the Collection, shall be kept by the Members of the Committees attached to the different Departments, who alone shall have the liberty to open the cases, and shall be responsible for all specimens committed to their charge.

ART. II. All specimens in the Cabinet must be properly classified as far as possible, and a correct catalogue of the specimens in each department, kept by the Committee in charge of said Department, who shall report, annually, on the second Monday in December.

ART. III. No specimen or specimens of Entomology contained in the Collection of the Society, shall be loaned from the Hall, under any pretence or for any purpose whatever.

ART. IV. Should any one be desirous to inspect more closely the specimens in the Collection, for the purpose of study or description, he must apply to the Members of the Committee on that Department.

ART. V. No specimens will be received on deposit; but all specimens contained in the Collection, are considered the property of the Society.

ART. VI. The Committees shall superintend the exchange of duplicates (which must be, in all cases, for the benefit of the Cabinet); but before exchanges are made, the Committee shall see that four specimens of each species are reserved for the Cabinet, all over that number may be considered as duplicates.

ART. VII. The Cabinet of the Society shall be open, to the study and inspection of the Members, on every Monday evening from 7 to 10 o'clock.

## CHAPTER VIII.

### LIBRARY.

ART. I. The Library shall contain only books having reference to Entomology, and no books presented to the Society, shall be loaned from the Hall under any pretence or for any purpose whatever.

ART. II. Books deposited in the Library shall, at all times, be at the command of the depositor, and none shall be loaned from the Hall, unless with his written consent.

ART. III. The Committee shall have possession of the keys of the Library, it shall keep a correct catalogue of all books deposited or presented to the Society, and shall be responsible for all works committed to its charge, and shall report, annually, on the second Monday in December.

ART. IV. The Library shall be open to the Members, for inspection and reference, on every Monday evening from 7 to 10 o'clock.

## CHAPTER IX.

### PUBLICATION.

ART. I. All written communications intended for publication, read before the Society, shall be referred to special Committees, who are to report thereon at the Stated Meeting next succeeding their appointment.



**ART. II.** All such communications become the property of the Society, and shall be deposited in its Archives after publication; a copy, however, of any paper read before the Society, may be taken by the author; but all written communications which shall not be accepted for publication, may be returned to the author if requested.

**ART. III.** It shall be the duty of the Committee on Publication to receive all such papers as have been accepted for publication by the Society; to have them published as early as possible, and to follow in the publication, as far as practicable, the order in which they have been reported on, and also to publish such abstracts of the Records of the Society, as may be of general interest.

**ART. IV.** The Committee shall be responsible for the cost of publication, it shall keep a correct account of its money transactions, receiving all monies arising from the sale of the Proceedings &c., and paying all bills for publishing the same, these having been first approved of by a majority of the Committee, and if the expenses exceed the receipts, they shall themselves make up the deficiency. A report of the transactions of the Committee, shall be made annually to the Society, on the second Monday in December.

## CHAPTER X.

### COLLECTING FUND.

**ART. I.** It shall be the duty of the Committee on Collecting Fund to endeavour to raise such funds as will enable it to send out Collectors; and for the purpose of purchasing such collections of insects as may tend to enhance the value of the Society's Cabinet.

**ART. II.** All subscribers to be entitled to a share of such insects as may be purchased; the rules to regulate the distribution of the insects, to be made by the Committee.

**ART. III.** The Committee shall make an annual report to the Society on the second Monday in December.

## CHAPTER XI.

### MEETINGS.

**ART. I.** The Stated Meetings of the Society shall be held on the second Monday evening of each month, at such hours as may be fixed from time to time by the Society.

**ART. II.** Special Meetings of the Society may be called by the President whenever he may deem it necessary, or at the request of any three Members in writing.

**ART. III.** Seven Members shall constitute a quorum for the transaction of business.

**ART. IV.** The order of business at Stated Meetings shall be as follows:

1. Minutes of last Stated Meeting shall be read.
2. Reports of Officers and Committees.
3. Donations to Cabinet.
4. Donations to Library.
5. Written communications.
6. Verbal communications.
7. Unfinished business.
8. New business.
9. Proposals and Elections.
10. Adjournment.

## CHAPTER XII.

**ART. I.** In case of the dissolution of the Society, a meeting of the resident Members shall be called to decide upon the disposition which shall be made of its property.

**ART. II.** In all such points of order as are not noticed in these By-laws, the Society is to be governed by the established usages of similar Institutions.

**ART. III.** Every proposition to alter or amend these By-laws, shall be submitted in writing at a Stated Meeting and acted upon at the next Stated Meeting, and if adopted by the affirmative votes of two-thirds of the Members present, it shall become a part of these By-laws; provided, that at least ten Members be present at each of the readings.

**ART. IV.** No one or more of these By-laws shall be suspended.



PROCEEDINGS  
OF THE  
ENTOMOLOGICAL SOCIETY  
OF PHILADELPHIA.

---

VOL. 1.            AUGUST AND SEPTEMBER, 1862.            No. 8.

---

STATED MEETING, AUGUST 11.

Vice-President BLAND in the Chair.

Fifteen members present.

REPORT OF COMMITTEE.

The Committee on Mr. Cresson's paper, read July 14th, reported in favor of its publication in the Proceedings of the Society.

DONATIONS TO CABINET.

50 specimens of COLEOPTERA (*Cicindela marginipennis*, *Pasimachus depressus*, *Dicælus dilatatus*, *Osmoderma scabra*, *Ancylochira rufipes*, *Phellidius cornutus*, *Dacne heros*), 3 DIPTERA (*Chrysopila ornata*), 2 LEPIDOPTERA (*Ceratocampa imperialis*), and 1 HYMENOPTERA (*Peltastes pollicinctorius*), from Thomas Cox.

6 specimens of COLEOPTERA (*Corymbites micans*, *Tylonotus bimaculatus*, *Cacophia pruinosa*), from Henry Feldman.

4 specimens of COLEOPTERA (*Dromius piceus*, *Helops americanus*), from Charles F. Parker.

3 specimens of COLEOPTERA (*Dorcus mazamus*, *Trox scutellaris*, *Molorchus mellitus* ♀), from Charles Wilt.

1 specimen of COLEOPTERA (*Pogonocherus mixtus*), from Jas. Ridings.

#### DONATIONS TO LIBRARY.

*Proceedings of the Boston Society of Natural History*, Vols. 1 to 8 inclusive. Deposited by Dr. T. B. Wilson.

*Insects injurious to vegetation in Illinois*, by Benj. D. Walsh. From the Author.

*Proceedings of the Academy of Natural Sciences of Philada.*, Vol. 13. From Dr. T. B. Wilson.

*Prairie Farmer* (Chicago, Ill.), Nos. 2 to 6 of Vol. 10. From the Editors.

*Proceedings of the Boston Society of Natural History*, Vol. 9, pages 33 to 64. From the Society.

*Charter, Constitution and By-laws of the Burlington County Lyceum of History and Natural Science, at Mount Holly, New Jersey*. From the Lyceum.

*Proceedings of the Society for May, June and July, 1862*. From the Publication Committee.

Since the receipt of the Act of Incorporation, certified by the Deputy Secretary of Pennsylvania—which was accepted by the Society—another copy beautifully engrossed on parchment, handsomely framed, and signed by Governor A. G. Curtin and Eli Slifer, Secretary of Pennsylvania, has been received and presented to the Society this evening by Dr. Thos. B. Wilson.

#### WRITTEN COMMUNICATIONS.

Letters were read from the Smithsonian Institution, acknowledging the receipt of Vol. 1, Nos. 1 and 4 of the Proceedings of the Society.

A communication was read from Mr. Evett, reporting the capture of the following Insects in the vicinity of Philadelphia, during July and August:—*Conops tibialis*, *Conops sagittarius*, on flowers; *Midas clavatus*, *Dasypogon discolor*, *Laphria tergissa*, *Laphria glabrata*, *Tabanus lineola*, *Baccha fuscipennis*, in the open fields; *Anthrax Simson*, on fences; *Alaus myops*:— In March, 1862, collected near the city, in an old

pine stump, several larvæ and imagos of this insect. The larvæ were put in glass bottles filled with moist pine saw-dust and corked tight. Only one imago was raised, the failure in raising more is attributed to carelessness. The larva, when captured, was about  $1\frac{1}{2}$  inches long and  $\frac{1}{4}$  inch wide, nearly the same width throughout its entire length and somewhat flattened. Head and thorax dark brown, becoming gradually lighter towards the end of the abdomen. The larva began to change to pupa-state about the 25th of July and the imago appeared about the 7th of August, being in pupa-state about two weeks. Color of pupa white, when young.

The following paper was presented for publication in the Proceedings: "Additions and corrections to the paper entitled 'On the Cynipidæ of the North American Oaks and their Galls,' by Baron R. Osten Sacken."

And was referred to a Committee.

#### ELECTIONS.

Messrs. John Bolton and James H. Poe, of Portsmouth, Ohio, were elected *Corresponding Members* of the Society.

—————:—————

#### Catalogue of the described species of North American HYMENOPTERA.

BY E. T. CRESSON.

(Continued from page 211.)

#### Fam. CHALCIDIDÆ.

##### LEUCOSPIS Fabr.

*affinis* Say, Long's Second Expedition, vol. 2, p. 327. Pennsylvania.  
*basalis* Klug, MSS. *Westw.* Germar's Zeitschrift für Entomologie, 1, p. 264. N. Am.  
*fraternus* Say, Boston Journal of Natural History, vol. 1, p. 269. Indiana.  
*integra* Hald. Proceedings Academy of Natural Sciences, Phila. 2, p. 53. (Penn.)  
*Klugii* *Westw.* Germar's Zeitschrift für Entomologie, 1, p. 249; tab. 3, fig. 1. Mex.  
*Pæyi* Guér. Icon. Rég. An. 3. p. 414. *LaSagra*, Hist. Cuba, tab. 18, fig. 4. Cuba.  
*Shuckardi* *Westwood*, Ent. Mag. 2, p. 214. Germ. Zeits. Ent. 1, 241. North America.  
*subnotata* *Westwood*, Entomological Magazine, 2, p. 215. Nova Scotia.

##### SMIERA Spinola.

*Ampyx* Walker, Ann. & Mag. Nat. Hist. 2nd series, 5, p. 129. West Indies.

*captiva* Smith, Trans. Entom. Soc. of Lond. 3rd series, vol. 1, p. 42. Panama.  
*Fidius* Walker, Ann. & Mag. Nat. Hist. 2nd series, 5, p. 129. West Indies.  
*fulvescens* Walker, Entomological Magazine, vol. 2, p. 25. North America.  
*Lamyra* Walker, Entomologist, p. 337. Mexico.  
*nigrifex* Walk. Ent. Mag. vol. 2, p. 22. Brit. Mus. Cat. (Chalcidites) p. 2. Georgia.  
*Pratinas* Walker, Ann. & Mag. Nat. Hist. 2nd series, 5, p. 130. West Indies.  
*Pylas* Walker, Entomologist, p. 337. Brit. Mus. Cat. Chalc. p. 3. Mexico.  
*side* Walker, Ann. Soc. Ent. France, 2e sér. 1, p. 145. Florida.  
*subpunctata* Walker, Entomological Magazine, vol. 2, p. 25. St. Vincent's.

#### EPITRANUS Walker.

*fulvescens* Walker, Entomological Magazine, 2, 26. St. Vincent's.

#### CHALCIS Fabr.

*albifrons* Walsh, Insects injurious to vegetation in Illinois. p. 37, fig. 8. Illinois.  
*amoena* Say, Boston Journal of Natural History, vol. 1, p. 270. Indiana.  
*annulipes* Walker, Entomological Magazine. vol. 2, p. 29. St. Vincent's.  
*debilis* Say, Boston Journal of Natural History, vol. 1, p. 271. Indiana.  
*Lasnierii* Guér. Iconographie due Règne Animal, 3, p. 412; tab. 67, fig. 4. Cuba.  
*maculata* Fabr. Ent. Syst. 2. 198. Walker, (Smiera) Entomologist, p. 218. N. York.  
*microgaster* Say, Long's Second Expedition, vol. 2, p. 326. Pennsylvania.  
*minuta* Fabr. Ent. Syst. 2, 195. Walk. Brit. Mus. Cat. (Chalcidites) p. 5. Georgia.  
*nigricornis* Fabr. Entomologia Systematica, Supplement, p. 243. North America.  
*octonotata* Harris, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*ovata* Say, Long's Second Expedition, vol. 2, p. 326. Ohio. Pennsylvania.

#### PHASGONOPHORA Westw.

*sulcata* Westw. Griff. Anim. King. 15, 432; t. 77, f. 2. Walk. Entom. p. 219. Georgia.

#### HOCKERIA Lap.

*onatas* Walker, Ann. Soc. Ent. France, 2e sér. 1, p. 146. Florida.  
*perpulehra* Walsh, Insects injurious to vegetation in Illinois. p. 42. Illinois.  
*xanticles* Walker, Ann. Soc. Ent. France, 2e sér. 1, p. 147. Florida.

#### NOTASPIS Walker.

*formiciformis* Walk. Entomological Magazine, 2, p. 38: pl. F, fig. 1. St. Vincent's.

#### EUREYTOMA Illig.

*abatos* Walker, Ann. Soc. Ent. France, 2e sér. 1, 152. Florida.  
*oretheis* Walker, Ann. Soc. Ent. France, 2e sér. 1, 150. Florida.  
*fulvipes* Fitch, Journ. New York State Agric. Society, 9, 115. New York.  
*hecale* Walker, Ann. Soc. Ent. France, 2e sér. 1, 151. Florida.  
*Hordei* Harris, New England Farmer, July, 1830. New England.  
*Iphis* Walker, British Museum Catalogue, Chalcidites, Pt. 1, Append. 85. Florida.  
*lanula* Fitch, Fifth Report on the Noxious Insects of New York. p. 37. New York.  
*orbiculata* Say, Boston Journal of Natural History, vol. 1, p. 272. Indiana.  
*pythes* Walker, Ann. Soc. Ent. France, 2e sér. 1, 154. Florida.  
*Secalis* Fitch, American Agriculturist, New York, August, 1861, p. 235. N. York.

*studiosa* Say, Boston Journal of Natural History, vol. 1, p. 272. Indiana.  
*tereden* Walker, Ann. Soc. Ent. France, 2e sér. 1, 153. Florida.  
*tritici* Fitch, Journ. New York State Agric. Society, 9, 115. New York.

#### **DECATOMA** Spinola.

*Oretilia* Walker, Annals of Natural History, vol. 12, p. 46. St. Vincent's.

#### **MEGASTIGMUS** Dalm.

*Pinus* Parfitt, Zoologist, vol. 15, p. 5543. California.

#### **TORYMUS** Dalm.

*amethystinus* Harris, Catalogue of the Insects of Massachusetts, 2nd edition.  
*asaleus* Harris, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*ocreatus* Say, Boston Journal of Natural History, vol. 1, p. 275. Indiana.  
*parvidus* Say, Boston Journal of Natural History, vol. 1, p. 275. Indiana.  
*semiauratus* Harris, Catalogue of the Insects of Massachusetts, 2nd edition.

#### **CALLIMOME** Spinola.

*Æa* Walker, Annals of Natural History, 12, p. 104. New York.  
*Cecidomya* Walker, Annals of Natural History, 14, p. 15. Hudson's Bay.  
*liassus* Walker, Ann. Soc. Ent. France, 2e sér. 1, p. 150. Florida.  
*theon* Walker, Ann. Soc. Ent. France, 2e sér. 1, p. 149. Florida.  
*splendidus* Barnston, MSS. Walker, Ann. Nat. Hist. 14, p. 14. Hudson's Bay.

#### **ORMYRUS** Westw.

*labotus* Walker, Ann. Soc. Ent. France, 2e sér. 1, p. 148. Florida.

#### **CHIROCERUS** Latr.

*furcatus* Westw. Brullé, Hymén. pl. 38, fig. 5. *LaSagra*, Hist. Cuba, p. 762. Cuba.

#### **PERILAMPUS** Latr.

*Alexinus* Walker, British Museum Catalogue, Chalc. Pt. 1, Append. 89. Georgia.  
*cyaneus* Brullé, Hyménoptères, p. 573; tab. 39, fig. 3. Carolina.  
*Entellus* Walker, Annals of Natural History, 12, p. 103. Ohio.  
*hyalinus* Say, Contributions to MacLurian Lyceum, vol. 1, p. 79. Pennsylvania.  
*Lepreos* Walker, British Museum Catalogue, Chalc. Pt. 1, Append. 89. Georgia.  
*platigaster* Say, Boston Journal of Natural History, vol. 1, p. 274. Indiana.  
*triangularis* Say, Contributions to MacLurian Lyceum, vol. 1, p. 78. Indiana.

#### **IDARNES** Walker.

*Carme* Walker, Annals of Natural History, 12, p. 47. St. Vincent's.

#### **SPALANGIA** Latr.

*politus* Say, Contributions to MacLurian Lyceum, vol. 1, p. 79. Virginia.  
*querci-lance* Fitch, Fifth Report on the Noxious Insects of New York, p. 36.



**MACROGLENE** Westw.

*querci-globuli* Fitch, Fifth Report on the Noxious Insects of New York. p. 32.  
*querci-pisi* Fitch. Fifth Report on the Noxious Insects of New York, p. 39.

**PAPHAGUS** Walker.

*Sidero* Walker, Annals of Natural History, 12, p. 48. St. Vincent's.

**LAMPROTATUS** Westw.

*cyrnus* Walker, Ann. Soc. Ent. France, 2e sér. 1, p. 157. Florida.  
*Diseus* Walker, Annals of Natural History, 14, p. 16. Hudson's Bay.  
*habis* Walker, Ann. Soc. Ent. France, 2e sér. 1, p. 155. Florida.  
*salemus* Walker, ib 156. Florida.  
*trypherus* Walker, ib 158. Florida.

**PACHYNEURON** Walker.

*albutius* Walker, Ann. Soc. Ent. France, 2e sér. 1, p. 158. Florida.

**MICROMELUS** Walker.

*cyrene* Walker, Ann. Soc. Ent. France, 2e sér. 1, p. 154. Florida.

**GLYPHE** Walker.

*viridascens* Walsh, Insects injurious to vegetation in Illinois, p. 38, fig. 9. Illinois.

**NOBBANUS** Walker.

*dysaules* Walker, Ann. Soc. Ent. France, 2e sér. 1, p. 159. Florida.  
*pisius* Walker, ib 160. Florida.

**METOPON** Walker.

*deiphon* Walker, Ann. Soc. Ent. France, 2e sér. 1, p. 161. Florida.

**PTEROMALUS** Swederus.

*arctis* Harris, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*bicolor* Swederus. Walker, (Euplectrus) Brit. Mus. Cat. Chalc. p. 67. St. Vincent's.  
*Cassotis* Walker, Annals of Natural History, 19, p. 393. North America.  
*clisiocampæ* Harris, Catalogue of the Insects of Massachusetts, 2nd edition.  
*Cratylus* Walker, Annals of Natural History, 19, p. 392. North America.  
*Damo* Walker, ib 395. ib  
*Dipsas* Walker, ib 394. ib  
*Doryssus* Walker, ib 395. ib  
*Dymnus* Walker, ib 397. ib  
*Epicles* Walker, ib 394. ib  
*Eryx* Walker, ib 397. ib  
*Eurypon* Walker, ib 398. ib  
*Euthymus* Walker. ib 393. ib  
*Helleo* Walker, ib 12, p. 46. St. Vincent's.  
*Hermeas* Walker. ib 19, p. 394. North America.  
*Hybreas* Walker, ib 397. ib  
*Lausus* Walker, ib 392. ib

*lepturus* Harris, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*obesus* Harris, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*Gax* Walker, Annals of Natural History, 19, p. 395. North America.  
*onerati* Fitch, Fifth Report on the Noxious Insects of New York, p. 32. N. York.  
*Orontas* Walker, Annals of Natural History, 19, p. 396. North America.  
*queri-pilula* Fitch, Fifth Report on the Noxious Insects of New York, p. 39.  
*Timma* Walker, Annals of Natural History, 19, p. 396. North America.  
*vanessa* Harris, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.

#### **LELAPS** Haliday.

*pulchricornis* Haliday, Trans. Entom. Soc. of London, vol. 3, p. 300. St. Vincent's.

#### **EPISTENIA** Westw.

*oceruleata* Westw. Griff. An. Kingd. 15, 432, pl. 77, fig. 3. Walk. B. M. C. Georgia.

#### **EUPELMUS** Dalm.

*Epicaste* Walker, Annals of Natural History, 20, p. 20. North America.  
*Fontels* Walker, ib 19. ib  
*Lamachus* Walker, ib 20. ib

#### **METAPELMA** Westw.

*spectabilis* Westwood, Proceedings of the Zoological Society, 1835, p. 69. Georgia.

#### **ENCYRTUS** Dalm.

*Bolus* Walker, Annals of Natural History, 14, p. 17. Hudson's Bay.  
*Flaccus* Walker, (Cerchysius) ib 20, p. 21. North America.  
*Gargaris* Walker, ib 12, p. 47. St. Vincent's.  
*Gastron* Walker, ib 20, p. 21. North America.  
*Hyettus* Walker, (Ænasius) ib 17, p. 181. St. Vincent's.  
*Reate* Walker, ib 20, p. 22. North America.  
*Vectius* Walker, ib 21. ib

#### **ERIOPHILUS** Hald.

*mali* Hald. Proceedings Boston Society of Natural History. vol. 6, p. 403. Penn.

#### **CLOSTEROCERUS** Walk.

*Damastes* Walker, Annals of Natural History, 20, p. 22. North America.

#### **ENTEDON** Dalm.

*Harillus* Walker, (Euderus) Annals of Natural History, 20, p. 23. N. America.  
*Imbrassus* Walker, ib 23. ib  
*Sardus* Walker, (Horismenus) ib 23. ib

#### **EUPLECTRUS** Westw.

*Furnius* Walker, Annals of Natural History, 12, p. 48. St. Vincent's.

#### **ELACHESTUS** Spinola.

*Levana* Walker, Annals of Natural History, 20, p. 27. North America.

**EULOPHUS** Geoff.

- basalis* Say, Boston Journal of Natural History, vol. 1, p. 273. Indiana.  
*Calavius* Walker, Annals of Natural History, 20, p. 24. North America.  
*Cyriades* Walker, ib 25. ib  
*dieladus* Say, Boston Journal of Natural History, vol. 1, p. 273. Indiana.  
*Gobryas* Walker, Annals of Natural History, 20, p. 26. North America.  
*hiroinus* Say, Boston Journal of Natural History, vol. 1, p. 274. Indiana.  
*Iphinoe* Walker, Annals of Natural History, 20, p. 25. North America.  
*Minio* Walker, ib 25. ib  
*Minyas* Walker, ib 26. ib .

**CIRROSPILUS** Westw.

- Eunapius* Walker, Annals of Natural History, 20, p. 27. North America.

**TETRASTICHUS** Haliday.

- Epidius* Walker, Annals of Natural History, 20, p. 28. North America.  
*Gala* Walker, ib 28. ib  
*granulatus* Walker, ib 14, p. 17. Hudson's Bay.  
*Hæmon* Walker, ib 20, p. 28. North America.

**ACRIAS** Walker.

- Nileus* Walker, Annals of Natural History, 20, p. 29. North America.

## Fam. PROCTOTRUPIDÆ.

**PSILUS** Jurine.

- abdominalis* Say, Boston Journal of Natural History, vol. 1, p. 283. Indiana.  
*apicalis* Say, Boston Journal of Natural History, vol. 1, p. 283. Indiana.  
*brevicornis* Say, Long's Second Expedition, vol. 2, p. 328. St. Peter's River.  
*ciliatus* Say, Contributions to Maclurian Lyceum, vol. 1, p. 80. Indiana.  
*colon* Say, Boston Journal of Natural History, vol. 1, p. 284. Indiana.  
*obtusus* Say, Contributions to Maclurian Lyceum, vol. 1, p. 80. Indiana.  
*terminatus* Say, Boston Journal of Natural History, vol. 1, p. 282. Indiana.

**SERLION** Latr.

- terminalis* Say, Contributions to Maclurian Lyceum, vol. 1, p. 80. Indiana.

**COPTERA** Say.

- polita* Say, Boston Journal of Natural History, vol. 1, p. 282. Indiana.

**CINETUS** Jurine.

- mellipes* Say, Boston Journal of Natural History, vol. 1, p. 279. Indiana.

**PROCTOTRUPES** Latr.

- abruptus* Say, Boston Journal of Natural History, vol. 1, p. 278. Indiana.

*caudatus* Say, Long's Second Expedition, vol. 2, p. 329. North-west Territory.  
*obsoletus* Say, Boston Journal of Natural History, vol. 1, p. 277. Indiana.

**CODERUS** Jurine.

*pallidus* Say, Contributions to MacLurian Lyceum, vol. 1, p. 80. Indiana.

**ANTEON** Jurine.

*tibialis* Say, Boston Journal of Natural History, vol. 1, p. 284. Indiana.

**DRYINUS** Latr.

*bifasciatus* Say, Contributions to MacLurian Lyceum, vol. 1, p. 81. Indiana.  
*planiceps* Fabr. Systema Piezatorum, p. 201. Americæ Insulis (West Indies?).

**BETHYLUS** Latr.

*armiferus* Say, Contributions to MacLurian Lyceum, vol. 1, p. 80. Indiana.  
*cellularis* Say, Boston Journal of Natural History, vol. 1, p. 279. Indiana.  
*centratu* Say, Boston Journal of Natural History, vol. 1, p. 281. Indiana.  
*musculus* Say, Boston Journal of Natural History, vol. 1, p. 280. Indiana.  
*pedatus* Say, Boston Journal of Natural History, vol. 1, p. 280. Indiana.  
*rufipes* Say, Long's Second Expedition, vol. 2, p. 329. North-west Territory.

**EPYRIS** Westw.

*aurichalcea* Klug, MSS. Westw. Introduction, vol. 2, p. 180. Cuba.

**TELENOMUS** Haliday.

*Apitius* Walker, Annals of Natural History, 12, p. 48. St. Vincent's.

**CERAPHRON** Jurine.

*armatus* Say, Boston Journal of Natural History, vol. 1, p. 276. Indiana.  
*platycephalus* Harris, Catalogue of the Insects of Massachusetts, 2nd edition.  
*stigmatus* Say, Boston Journal of Natural History, vol. 1, p. 277. Indiana.  
*Triticum* Taylor, American Agriculturist, New York, October, 1860, p. 300, fig. 1.

**SPARASION** Latr.

*famelicus* Say, Boston Journal of Natural History, vol. 1, p. 276. Indiana.

**PLATYGASTER** Latr.

*pallipes* Say, Contributions to MacLurian Lyceum, vol. 1, p. 80.

Fam. **CHRYSIDÆ.**

**HEDYCHRUM** Latr.

*asperum* Brullé, Hyménoptères, p. 52. North America.  
*dimidiatum* Say, Long's Second Expedition, vol. 2, p. 330. Pennsylvania.  
*janus* Hald. Proceedings Academy of Natural Sciences, Phila. 2, p. 53. (Penn.)  
*obsoletum* Say, Boston Journal of Natural History, vol. 1, p. 284. Indiana.  
*sinuosum* Say, Contributions to MacLurian Lyceum, vol. 1, p. 82. Indiana.

*speculum* Say, Boston Journal of Natural History, vol. 1, p. 285. Indiana.  
*ventrale* Say, Long's Second Expedition, vol. 2, p. 330. Pennsylvania.  
*violaceum* Brullé, Hyménoptères, p. 51. North America.

#### CHRYSID Fabr.

*cærulans* Lep. Brullé, Hyménoptères, p. 37. North America.  
*carinata* Say, Contributions to MacLurian Lyceum, vol. 1, p. 82. Indiana.  
*cærulans* Fabr. Systema Piezatorum, p. 172. Carolina.  
*insularis* Guér. Rev. Zool. 1842, p. 148. *LaSagra*, Hist. Cuba, tab. 18, fig. 5. Cuba.  
*intricata* Brullé, Hyménoptères, p. 25. Philadelphia.  
*maculata* Fabr. Entomologia Systematica, Suppl. p. 258. Amer. Insulis (W. Ind?).  
*mexicana* Guér. Iconographie du Règne Animal, 3, p. 418; tab. 68, fig. 9. Mex.  
*muconata* Brullé, Hyménoptères, p. 45. Mexico.  
*nitidula* Fabr. Entomologia Systematica, 2, 243. Brullé, Hymén. p. 38. U. States.  
*pacifica* Say, Contributions to MacLurian Lyceum, vol. 1, p. 82. Indiana.  
*pennsylvanica* Brullé, Hyménoptères, p. 24. Philadelphia.  
*rastellum* Brullé, Hyménoptères, p. 32. Mexico.  
*sexdentata* Fabr. Brullé, Hyménoptères, p. 25. North America.  
*smaragdula* Fabr. Entomologia Systematica, 2, p. 239. North America.  
*truncata* Guér. Revue Zoologique, 1842, p. 146. North America.

#### PYRIA St. Farg.

*tridens* St. Farg. Encyclopédie Méthodique, Insects, 10, p. 495. United States.

### Fam. CRABRONIDÆ.

#### NYSSON Latr.

*aurinotus* Say, Boston Journal of Natural History, vol. 1, p. 368. Indiana.  
*laterale* Harris, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*5-spinosus* Say, Western Quarterly Reporter, vol. 2, p. 78. Arkansa.

#### BICYRTES St. Farg.

*Servillii* St. Fargeau, Hyménoptères, 3, p. 53. Philadelphia.

#### ASTATA Latr.

*bicolor* Say, Western Quarterly Reporter, vol. 2, p. 78. Arkansa.  
*unicolor* Say, Long's Second Exped. 2, p. 337. Smith, B. M. C. 4, t. 8, f. 1. Missouri.

#### OXYBELUS Latr.

*emarginatus* Say, Boston Journal of Natural History, vol. 1, p. 375. Indiana.  
*impatiens* Smith, British Museum Catalogue, Hym. 4, p. 390. California.  
*latus* Say, Boston Journal of Natural History, vol. 1, p. 375. Indiana.  
*4-notatus* Say, Long's Second Expedition, vol. 2, p. 338. Pennsylvania.

#### TRYPOXYLON Latr.

*albitarsæ* Fabr. Syst. Piez. p. 180. Beauv. Ins. Afr. et Am. 115. Hym. pl. 3, f. 1. U. S.

*atritarse* Harris, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*carinatus* Say, Boston Journal of Natural History, vol. 1, p. 374. Indiana.  
*clavatus* Say, Boston Journal of Natural History, vol. 1, p. 374. United States.  
*collinum* Smith, British Museum Catalogue, Hym. 4, p. 381. Florida.  
*excavatum* Smith, British Museum Catalogue, Hym. 4, p. 380. Jamaica.  
*frigidum* Smith, British Museum Catalogue, Hym. 4, p. 380. Hudson's Bay.  
*fuscipennis* Fabr. Syst. Piez. 181. Beauv. Ins. Afr. Am. 115, Hym. t. 3, f. 2. Carolina.  
*pelitus* Say, Boston Journal of Natural History, vol. 1, p. 373. Indiana.  
*subimpressum* Smith, British Museum Catalogue, Hym. 4, p. 380. St. Domingo.  
*unicolor* Beauv. Insects Afr. et Amér. p. 116, Hym. pl. 3, fig. 3. Carolina.

#### PSEN Latr.

*leucopus* Say, Boston Journal of Natural History, vol. 1, p. 370. Indiana.  
*mellipes* Say, Boston Journal of Natural History, vol. 1, p. 369. Indiana.

#### NIMESA Shuck. .

*borealis* Smith, British Museum Catalogue, Hym. 4, p. 431. Hudson's Bay.

#### ALYSON Jurine.

*melleus* Say, Boston Journal of Natural History, vol. 1, p. 380. Indiana.  
*oppositus* Say, Boston Journal of Natural History, vol. 1, p. 380. Indiana.

#### GORYTES Latr.

*apicalis* Smith, British Museum Catalogue, Hym. 4, p. 369. Georgia.  
*bipunctatus* Say, Long's Second Expedition, vol. 2, p. 338. Pennsylvania.  
*divisus* Smith, British Museum Catalogue, Hym. 4, p. 370. Georgia.  
*fulvipennis* Smith, British Museum Catalogue, Hym. 4, p. 367. United States.  
*nigrifrons* Smith, British Museum Catalogue, Hym. 4, p. 368. Nova Scotia.  
*phaleratus* Say, Boston Journal of Natural History, vol. 1, p. 367. Indiana.  
*placidus* Smith, British Museum Catalogue, Hym. 4, p. 368. Florida.  
*rufipes* Smith, British Museum Catalogue, Hym. 4, p. 369. Florida.  
*simillimus* Smith, British Museum Catalogue, Hym. 4, p. 367. Nova Scotia.

#### CRABEO Fabr.

*advena* Smith, British Museum Catalogue, Hym. 4, p. 421. Nova Scotia.  
*arcuatus* Say, Boston Journal of Natural History, vol. 1, p. 377. Indiana.  
*argus* Harris, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*aurifrons* Smith, British Museum Catalogue, Hym. 4, p. 420. Georgia.  
*chrysargyrus* St. Farg. Ann. Soc. Entom. France, 3, p. 711. Philadelphia.  
*collinus* Smith, British Museum Catalogue, Hym. 4, p. 420. Florida.  
*complanatus* Say. Harris, Catalogue of the Insects of Massachusetts, 2nd edition.  
*confertus* Harris, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*confluentus* Say, Boston Journal of Natural History, vol. 1, p. 376. Indiana.  
*decommasulatus* Say, Western Quarterly Reporter, vol. 2, p. 78. Missouri.  
*famelicus* Harris, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*frigidus* Smith, British Museum Catalogue, Hym. 4, p. 419. North America.  
*glauconotatus* Harris, Catalogue of the Insects of Massachusetts, 2nd edition.  
*gryphus* Harris, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.

*hilaris* Smith, British Museum Catalogue, Hym. 4, p. 416. Florida.  
*latipes* Smith, British Museum Catalogue, Hym. 4, p. 396. Nova Scotia.  
*maculatus* Fabr. Entomologia Systematica, 2, p. 295. North America.  
*maculipennis* Smith, British Museum Catalogue, Hym. 4, p. 417. Hudson's Bay.  
*obscurus* Smith, British Museum Catalogue, Hym. 4, p. 418. Hudson's Bay.  
*pogonus* Harris, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*pusillus* Harris, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*scutellatus* Say, Long's Second Expedition, vol. 2, p. 341. Pennsylvania.  
*sexmaculatus* Say, Long's Second Expedition, vol. 2, p. 341. Pennsylvania.  
*singularis* Smith, British Museum Catalogue, Hym. 4, p. 417. North America.  
*tibialis* Say, Long's Second Expedition, vol. 2, p. 340. Pennsylvania.  
*tricornatus* Fabr. Systema Piezatorum, p. 313. Americae Insulis (West Indies?).  
*trifasciatus* Say, Long's Second Expedition, vol. 2, p. 342. North-west Territory.

#### **CERATOCOLUS** St. Farg.

*rufipes* St. Farg. Ann. Soc. Entom. France, 3, p. 741. Carolina.

#### **SOLENIUS** St. Farg.

*eresus* St. Farg. Ann. Soc. Ent. France, 3, p. 727. Cuba.  
*interruptus* St. Farg. Ann. Soc. Ent. France, 3, p. 716. Philadelphia.  
*scaber* St. Farg. Ann. Soc. Ent. France, 3, p. 715. Philadelphia.

#### **STIGMUS** Jurine.

*fraternus* Say, Long's Second Expedition, vol. 2, p. 340. Pennsylvania.  
*parallelus* Say, Boston Journal of Natural History, vol. 1, p. 378. Mexico.  
*pusillus* Say, Boston Journal of Natural History, vol. 1, p. 378. Indiana.

#### **PEMPHEREDON** Fabr.

*annulatus* Say, Boston Journal of Natural History, vol. 1, p. 379. Indiana.  
*concolor* Say, Long's Second Expedition, vol. 2, p. 339. North-west Territory.  
*inornatus* Say, Long's Second Expedition, vol. 2, p. 339. Pennsylvania.  
*marginatus* Say, Boston Journal of Natural History, vol. 1, p. 379. Pennsylvania.

#### **PASSALÆCUS** Shuck.

*cuspidatus* Smith, British Museum Catalogue, Hym. 4, p. 427. Hudson's Bay.

#### **MELLINUS** Fabr.

*bimaculatus* Harris, Catalogue of the Insects of Massachusetts, 2nd edition.

#### **PHILANTHUS** Fabr.

*barbatus* Smith, British Museum Catalogue, Hym. 4, p. 473. North America.  
*canaliculatus* Say, West. Quar. Rep. 2, p. 79. American Entomology, pl. 49. Ark.  
*crabroniformis* Smith, British Museum Catalogue, Hym. 4, p. 474. California.  
*erratus* Harris, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*frigidus* Smith, British Museum Catalogue, Hym. 4, p. 475. Nova Scotia.  
*impunctatus* Harris, Catalogue of the Insects of Massachusetts, 2nd edition.  
*obsoletus* Harris, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*politus* Say, Long's Second Exped. 2, p. 343. American Entomology, pl. 49. Penn.  
*punctatus* Say, Long's Second Expedition, vol. 2, p. 342. Pennsylvania.

*solivagus* Say, Boston Journal of Natural History, vol. 1, p. 383. Indiana. -  
*vertilabris* Fabr. Syst. Piez. p. 303. Say, American Entomology, pl. 49. Carolina.  
*viatus* Harris, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*zonatus* Say. West. Quar. Rep. 2, 79. Say, American Entomology, pl. 49. Arkansa.

#### CERECERIS Latr.

*baridius* Harris, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*bidentata* Say, Western Quarterly Reporter, vol. 2, p. 80. Arkansa.  
*bicornuta* Guér. Iconographie due Règne Animal, 3, p. 443. New Orleans.  
*clypeata* Dahlb. Hym. Europ. 1, 221. Smith, Brit. Mus. Cat. Hym. 4, 465. N. Amer.  
*deserta* Say, Long's Second Expedition, vol. 2, p. 344. Missouri. Pennsylvania.  
*Dufourii* Guér. Iconographie due Règne Animal, 3, p. 444. New Orleans.  
*elegans* Smith, British Museum Catalogue, Hym. 4, p. 467. Florida.  
*frontata* Say, Western Quarterly Reporter, vol. 2, p. 80. Arkansa.  
*fumipennis* Say, Boston Journal of Natural History, vol. 1, p. 381. Indiana.  
*lævigata* Smith, British Museum Catalogue, Hym. 4, p. 465. St. Domingo.  
*nigrescens* Smith, British Museum Catalogue, Hym. 4, p. 466. Nova Scotia.  
*Perboscii* Guér. Iconographie due Règne Animal, 3, p. 444. Campêche.  
*rufopicta* Smith, British Museum Catalogue, Hym. 4, p. 467. Florida.  
*sexta* Say, Boston Journal of Natural History, vol. 1, p. 382. Missouri.  
*verticalis* Smith, British Museum Catalogue, Hym. 4, p. 466. Georgia.

#### CHEILOPOGONUS Westw.

*punctiger* Westw. Zoological Magazine, vol. 5, p. 441, pl. 22, fig. 4. Indiana.

### Fam. LARRIDÆ.

#### LARRA Fabr.

*abdominalis* Say, Western Quarterly Reporter, vol. 2, p. 77. Arkansa.  
*analis* Fabr. Systema Piezatorum, p. 220. Carolina.  
*argentata* Beauv. Insects Afr. et Amér. p. 119, Hym. pl. 3, fig. 9. Pennsylvania.  
*aurulenta* Fabr. Systema Piezatorum, p. 220. Carolina.  
*fuliginosa* Dahlb. Hym. Europ. 1, 138. Smith, Brit. Mus. Cat. Hym. 4, p. 288. Cuba.  
*moneduloides* Smith, British Museum Catalogue, Hym. 4, p. 346. Florida.  
*pennsylvanica* Beauv. Insects Afr. et Amér. p. 118, Hym. pl. 3, fig. 8. Pennsylvania.  
*subita* Harris, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*tarsata* Say, Western Quarterly Reporter, vol. 2, p. 78. Arkansa.

#### LARRADA Smith.

*arcuata* Smith, British Museum Catalogue, Hym. 4, p. 293. Canada.  
*canescens* Smith, British Museum Catalogue, Hym. 4, p. 292. Georgia.  
*distincta* Smith, British Museum Catalogue, Hym. 4, p. 292. New York.  
*fulvipes* Smith, British Museum Catalogue, Hym. 4, p. 288. Jamaica. St. Domingo.  
*ignipennis* Smith, British Museum Catalogue, Hym. 4, p. 288. St. Domingo.  
*lævifrons* Smith, British Museum Catalogue, Hym. 4, p. 291. Florida.  
*luctuosa* Smith, British Museum Catalogue, Hym. 4, p. 289. St. Domingo.



*tenuicornis* Smith, British Museum Catalogue, Hym. 4, p. 293. California.  
*terminata* Smith, British Museum Catalogue, Hym. 4, p. 291. North America.  
*trifasciata* Smith, British Museum Catalogue, Hym. 4, p. 290. St. Domingo.

#### LYROPS Illig.

*fulviventris* Guér. Icon. Règ. An. 3, 440. *LaSagra*, Hist. Cuba, tab. 18, fig. 9. Cuba.  
*peptica* Say, Boston Journal of Natural History, vol. 1, p. 371. Indiana.  
*subita* Say, (Lyroda) Boston Journal of Natural History, vol. 1, p. 372. Indiana.  
*triloba* Say, (Lyroda) Boston Journal of Natural History, vol. 1, p. 372.

#### TACHYTES Panz.

*argentipes* Smith, British Museum Catalogue, Hym. 4, p. 306. St. Vincent's.  
*distinctus* Smith, British Museum Catalogue, Hym. 4, p. 307. North America.  
*dives* St. Fargeau, Hyménoptères, 3, p. 247. Carolina.  
*pagana* Dahlb. Hym. Europ. 1, 132. Smith, Brit. Mus. Cat. 4, p. 286. St. Crucia.

#### LIRIS Fabr.

*trielineta* Fabr. Systema Piezatorum, p. 229. St. Thomas.

#### PISON Spinola.

*lævis* Smith, British Museum Catalogue, Hym. 4, p. 317. Georgia.

## STATED MEETING, SEPTEMBER 8.

Vice-President BLAND in the Chair.

#### REPORT OF COMMITTEE.

The Committee on Baron Osten Sacken's paper, read August 11th, reported in favor of its publication in the Proceedings of the Society.

#### DONATIONS TO CABINET.

75 specimems of LEPIDOPTERA (*Papilio thoas*, *Papilio calchas*, *Papilio machaon*, *Pieris monusta*, *Pieris leucodice* ♂ ♀, *Anthocaris ausonia*, *Rhodocera rhamni* ♂ ♀, *Callidryas marcellina*, *Callidryas eubule*, *Colias amphihusa*, *Colias cæsonia*, *Terias jucunda*, *Danias berenice*, *Agraulis vanillæ*, *Argynnis columbina*, *Argynnis astarte*, *Nymphalis arthemis*, *Apatura celtis*, *Neonympha cantheus*, *Debis portlandia*, *Libythea Bachmani*, *Thecla halesus* ♂ ♀, *Hesperia proteus*, *Nisoniades juvenalis*, *Nisoniades catullus*, *Pamphila oileus*, *Glaucopis pholus*, *Glaucopis epimenus*, *Thyris*

*lugubris*, *Thyreus Abbotii*, *Sphinx chionanthi*, *Sphinx ello*, *Sphinx jasminearum*, *Darapsa versicolor*, *Darapsa chærilus*, *Darapsa pampinatrix*, *Philampelus vitis* ♂ ♀, *Philampelus satellitia*, *Smerinthus myops*, *Smerinthus geminatus*, *Smerinthus excæcatus*, *Sphinx œnotrus*), from J. Ridings.

24 specimens of DIPTERA (*Anisomera megacera*, *Erioptera chrysocoma*, *Erioptera hirtipennis*, *Bibio articulata*, *Chrysopila simillima*, *Chrysopila quadrata*, *Syneches simplex*, *Helophilus chrysotomus*, *Sepedon armipes*, *Notiphila scularis*, *Hydrellia scapularis*), from E. T. Cresson.

19 specimens of LEPIDOPTERA (*Vanessa Milberti*, *Trochilium exitiosa*, *Saturnia luna*, *Aglia io*, *Leucania unipuncta*), from J. D. Wingate.

13 specimens of DIPTERA (*Bibio pallipes*, *Eupeitenus heteropterus*, *Atomosia pygmæa*, *Milesia eccentrica*, *Calliphora erythrocephala*, *Senometopia militaris*), from Dr. T. B. Wilson.

4 specimens of DIPTERA (*Thereva nigra*, *Syneches simplex*, *Chrysopila rotundipennis*, *Leptis vertebrata*), from William Evett.

2 specimens of LEPIDOPTERA (*Atticus cynthia*), 2 HYMENOPTERA (*Anomalon analis*), from Edward J. Nolan.

3 specimens of COLEOPTERA (*Cucoplia pruinosa*, *Distenia undata*), from Henry Feldman.

2 specimens of COLEOPTERA (*Spilotus 4-pustulatus*), from W. Wenzel.

2 specimens of HYMENOPTERA (*Perilampus triangularis*), from Edward Norton.

1 specimen of COLEOPTERA (*Cicindela abdominalis*), from James H. B. Bland.

#### DONATIONS TO LIBRARY.

*Synopsis of the Neuroptera of North America.* By Hermann Hagen. 1 Vol. 8vo. From William Evett.

*Prairie Farmer* (Chicago, Ill.), Nos. 7 to 10 of Vol. 10. From the Editors.

*Proceedings of the Boston Society of Natural History*, Vol. 9, pages 65 to 96. From the Society.

The following works were deposited by Dr. T. B. Wilson :—

*The Genera of Diurnal Lepidoptera.* By Doubleday and Westwood. 2 Vols. Folio.

*British Moths and their Transformations.* By J. O. Westwood. 2 Vols. 4to.

*Illustrations of Exotic Entomology.* By Dru Drury. New Edition. by J. O. Westwood. 3 Vols. 4to.

*Illustrations of new species of Exotic Butterflies* By W. C. Hewitson. 2 Vols. 4to.

*Catalogue of Hispidæ in the Collection of the British Museum.* Part 1. By Joseph S. Baly. 8vo.

*List of the specimens of Lepidopterous Insects in the Collection of the British Museum.* By Francis Walker. 20 Vols. 12mo.

*Catalogue of Hymenopterous Insects in the Collection of the British Museum.* By Frederick Smith. 7 Vols. 12mo.

*Papillons Exotiques des trois parties du monde l'Asie, l'Afrique et l'Amerique.* Par Pierre Cramer. 4 Vols. 4to.

*Monographie des Coléoptères subpentamères de la famille des Phytophages.* Par M. Th. Lacordaire. 2 Vols. 8vo.

*Essai Monographique sur les Clérîtes insectes Coléoptères.* Par M. Spinola. 2 Vols. Royal 8vo.

*Monographie des Guêpes Sociales, ou de la tribu des Vespiciens.* Par H. Saussure. 1 Vol. 8vo.

*Monographie des Guêpes Solitaires, ou de la tribu des Euméniens.* Par H. Saussure. 1 Vol. 8vo.

*Monographie des Fausses Guêpes, ou de la tribu des Masuriens.* Par H. Saussure. 1 Vol. 8vo.

*Ichneumonologia Europæa.* Auctore J. L. C. Gravenhorst. 3 Vols. 8vo.

*Histoire Naturelle des Insectes Hyménoptères (Suites à Buffon).* Par Lepeletier de Saint-Fargeau. 4 Vols., and Atlas. 8vo.

*Histoire Naturelle des Insectes Hémiptères (Suites à Buffon).* Par Amyot et Serville. 1 Vol. 8vo.

*Monographie des Olivina et genres voisins.* Par M. J. Putzeys. 1 Vol. 8vo.

*Catalogue des Coléoptères de la collection de M. le Comte Dejean.* 1 Vol. 8vo.

*Coléoptères du Mexique.* Par A. Chevrolat. 1 Vol. 12mo.

*List of the specimens of Hymenopterous Insects in the Collection of the British Museum. Chalcidites.* By Francis Walker. 2 Parts. 12mo.

*List of the specimens of Homopterous Insects in the Collection of the British Museum.* By Francis Walker. 5 Vols. 12mo.

*Révision de la famille des Cicindélides.* Par M. Th. Lacordaire. 1 Vol. 8vo.

**Additions and corrections to the paper entitled:  
"On the CYNIPIDÆ of the North American Oaks and their Galls."**

BY BARON R. OSTEN SACKEN.

Since the publication of my paper on the *Cynipidæ* of the North American Oaks (Proc. Entom. Soc. Phila. Oct. 1861), I have had occasion to make some additional observations, which serve to complete and often to correct, the statements of that paper.

It requires a particularly favorable situation to be able to pursue observations of this kind with some hope of attaining a certain completeness. My position in Washington, although affording me some facilities, did not always allow me to attain the accuracy which I desired. My removal to New York will probably deprive me for a long time of any opportunity of pursuing my observations. I prefer therefore, to publish now those I have on hand, following the conviction, already expressed before, that observations of nature should be made known without waiting too long for their further accumulation. The reader favorably situated may perhaps find among mine, incomplete as they are, some useful hints and suggestions. The subject is so extremely interesting and attractive that it deserves more attention than has been paid to it, not only in this country, but even in Europe.

All the observations, recorded below, have been made in Washington, unless otherwise mentioned.

Those who have paid any attention to the nomenclature of the oaks of this country, are acquainted with the difficulties attending the recognition of the species, chiefly of the red-oak group, if this recognition is to be based upon single leaves or even young trees. Thus I became aware after the publication of my paper, that the tree which I had called the red-oak (*Q. rubra*) was, in most cases, the scarlet-oak (*Q. coccinea*), which seems to be more abundant around Washington than the other. Most of the galls, therefore, mentioned as found on the red-oak, belong very probably to the other species. In some cases, I have been able to verify this fact, last spring. Other cases, however, are still doubtful.

**I. ADDITIONS TO THE PARAGRAPHS ON THE OAK-APPLE GALLS.**

(l. c. No. 1 and No. 3, p. 56 and 58).\*

At the time of my previous publication, I took for the gall of *C. con-*

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\* This paragraph supersedes the NN 1 and 3 of my former paper, except the descriptions of *C. g. aciculata* and *Synophrus lariventris* (l. c. p. 56 and 57), which have not been reproduced here.

*fluens* Harris all the oak-apples filled with a spongy substance, which I found in the environs of Washington.

Already then, however, I noticed two varieties of this gall, the one with a glossy, the other with an opaque surface (Compare l. c. p. 56).

These two varieties proved since to occur on two different kinds of oaks and therefore, very probably, to constitute two species, although the gall-flies, obtained from them, hardly show any difference. The gall-fly from the oak-apple No. 3 (l. c. p. 58), which I did not know at the time, but for which I proposed by anticipation the name of *C. q. inanis*, has also been reared by me since, and likewise closely resembles the other two gall-flies. Thus we have three (or perhaps four, as will be seen below) different and easily distinguished oak-apple galls, occurring on different species of the red-oak group, but all three producing uncommonly similar gall-flies.

The fourth oak-apple gall, peculiar to the same group of oaks, that of *C. q. aciculata*, discovered by Mr. Walsh, gives a totally different fly, as the ♀ has 14- and not 13-jointed antennæ.

I distinguish therefore, at present, the following oak-apple galls and their gall-flies :—

*Q. COCCINEA. Scarlet Oak? Large, more or less round gall, not attenuated towards the basis; surface glossy; shell thin and brittle; on the inside whitish filaments radiating from the kernel to the shell. Diameter about an inch. C. q. INANIS O. S. (Synon. l. c. No. 3, p. 58, and probably C. confluens Fitch, non Harris.)*

Two ♀ specimens obtained from the galls on the 20th of June, 1862, answer to the following description :—

Head black, deeply, irregularly sculptured on the front and vertex; face finely pubescent, rugose; antennæ 13-jointed, brown or reddish-brown, especially towards the tip. Thorax black, deeply, irregularly rugose, finely and sparsely pubescent; three deeper longitudinal furrows, converging towards the scutellum, may be distinguished among this rugosity; their bottom is intersected by numerous transverse ridges and wrinkles. These furrows are deepest and broadest near the scutellum; the intermediate one is gradually attenuated towards the collar; the anterior end of the lateral ones, which runs towards the shoulders, can be seen only when the insect is kept in a certain position towards the light. Near the anterior end of the intermediate furrow and parallel to it, there are smaller, rather indistinct, longitudinal furrows and ridges. The pit at the basis of the scutellum is large, divided in two by a longitudinal ridge; its bottom, although glossy, is marked with transverse ridges. Abdomen brownish-red, glossy; the large basal, in reality the second, segment (see l. c. p. 48, foot-note) is perfectly smooth, the other segments show a minute punctation; (the posterior edge of the smooth segment shows traces of a similar punctation, but they are so minute, as to be hardly

visible, requiring a strong lens to be distinguished). Legs reddish-yellow, pubescent, hind tarsi sometimes infuscated; onychia black. Wings with a brownish-black spot at the basis of the radial area; it slightly transgresses the second transverse vein, but does not touch the anterior margin of the wing.

I have found this gall more than once on young trees, belonging either to *Q. coccinea* or *Q. rubra*. (The leaves were elongate, cuneate at the basis and hardly or, at least, not deeply, sinuate; this is, I believe, one of the varieties of the scarlet oak.)

Among the specimens of my collection, I find a number of galls, collected in one locality and somewhat different in shape from the typical specimens of *C. q. inanis*. The latter are more or less globular, the leaf being, so to say, the tangent of the globe. There is no distinct point or nipple on the top. The other gall, on the contrary, is somewhat lemon-shaped, being attenuated at its basis with a corresponding elongation, ending in a minute nipple, at the opposite end. Its color is more brownish than that of *C. q. inanis*; on the inside, I did not detect any difference between both galls. The tree is also either the red, or the scarlet oak. As twelve specimens of this gall, although of different size, all show the same characters with distinctness, I can hardly believe that these are merely accidental. I obtained only parasites from this gall.

*Q. COCCINEA. Scarlet Oak. Large, more or less round gall, not attenuated at the basis, surface glossy, shell thin and brittle; on the inside with a spongy substance, surrounding a kernel in the centre. Diameter upwards to an inch and a half. C. q. COCCINEÆ O. S. (Syn. C. confluens O. S. non Harris, ex parte; gall No. 1, l. c. p. 56.)*

The external appearance of this gall is very like that of the gall of *C. q. inanis*. It is more or less globular (although irregular specimens of both frequently occur), that is, not narrowed towards the basis; its surface is glossy. Internally, it is easily distinguished by the spongy mass which fills it. It seems to reach a larger size than the former gall, as among six specimens now before me, one measures an inch and a half in diameter and two others are but little smaller, whereas among eight specimens of the gall of *C. q. inanis* the largest does not much exceed an inch.

From the following gall it is distinguished by its glossy surface, its less dense and more whitish spongy internal matter, its much thinner and brittle shell and by its shape, which is more rounded on the top. From this gall I have obtained this year (about the 25th of June) only one ♀ specimen, not showing any perceptible difference from *C. q. inanis*, except that

the thorax is somewhat reddish, which is probably due to the immaturity of the specimen.

*Q. TINCTORIA. Black Oak. Large, round gall, somewhat attenuated and pointed at the top; surface more or less opaque, as if powdered or dusted; shell thick; inside, a dense, spongy, brownish substance, surrounding the kernel. Diameter about an inch and a half. C. Q. SPONGIFICA O. S.*

This is the opaque variety mentioned l. c. p. 56, under the head of *Cynips confuens*. On the 25th of May last I found four full-grown specimens of this gall on the leaves of a large black oak (*Q. tinctoria*), and have obtained, on June 15, three ♀ specimens of the gall-fly. They look exactly like *C. q. inanis*, only they are a little larger, (the gall being also larger); the three grooves on the back of the thorax seem to be deeper and more distinct on their anterior portion; the posterior part of the scutellum, immediately behind the pit, seems to be more deeply and distinctly excised; finally, the punctation on the hind margin of the large (2nd) segment of the abdomen is somewhat more distinct.

Of these galls three, taken from a high branch of the tree, can be considered as typical specimens. They are slightly oblong, that is, somewhat extended into a point at the end, although not narrowed at the basis. Their diameter is about an inch and a half. Their color is drab, sometimes spotted with brown on one side; the surface is more or less opaque, as if powdered or sericeous, and shows very little gloss. The shell is much thicker than that of the two previous species; the spongy mass is more dense and brownish.

A fourth specimen, found on the same tree, is more irregular in its shape; its surface is without any gloss and altogether drab, without brown spots. Specimens of this kind are frequently found on young shrubs of *Q. tinctoria*, the leaves of which are very rusty-puberulent beneath.

On a shrub of this kind, apparently also belonging to *Q. tinctoria*, I found, last June, three galls, resembling exactly those just described. I cut them open and obtained from two of them perfectly mature *male specimens* of *Cynips*; the third also contained a mature specimen, yet contracted in the shape of a pupa and the abdomen of which was consumed by parasitical larvæ.\*

There is no reason to doubt that the two males thus obtained, belong to *C. q. spongifica*; but if not for the circumstance that they were found

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\* This fact is worthy of remark, as it proves that some kinds of parasites begin their attacks only at a very late stage of the development of the insect.

in a similar gall, they might as well be taken for the males of the two previous species, as the slight differences they show distinguish them alike from the three species of females.

These differences, (besides their longer and 15-jointed antennæ and a smaller abdomen, both being peculiar to the sex) consist, as far as I could perceive, only in the *dark brown*, almost black, and not *red* color of their abdomen, in their infuscated hind tibiæ and tarsi, in a somewhat deeper sculpture of the thorax and in a slightly more distinct punctuation of the abdomen. These male *Cynips* also resemble the *C. q. cælebs*, except that the latter is somewhat smaller and that the spot on its wing is also more small and paler.

**Q. TINCTORIA.** *Black oak. Large, round gall, broad and rounded at the top; surface smooth and glossy; shell thick; inside, a dense, brown, spongy substance surrounding the kernel. Diameter upwards to an inch and a half. C. q. ACICULATA O. S. (Syn. C. confluens Harris?)*

This gall was communicated to me by Benj. D. Walsh Esq., in Rock Island, Ill.

The specimens which I received from him can at once be distinguished from the gall of *C. q. spongifica*, by their smooth, glossy surface and their subglobular or short-oval form, their basis being slightly attenuated, their top, on the contrary, being broad and rounded. Otherwise, their thick shell and their dense, brownish spongy substance reminds of *C. q. spongifica*.

Mr. Walsh noticed their appearance in summer (about July). The gall-flies usually remain in the gall through the winter and escape in the spring; sometimes however, especially when the weather in the fall is unusually warm, the flies leave the gall already at that season.

The synonymy of this species with *C. confluens* Harris, supposed by Mr. Walsh, is founded on the occurrence of their galls at the same season, and on the statement of Mr. Norton about the agreement of *C. q. aciculata* with the original specimens of *C. confluens* in Dr. Harris's collection. But if Dr. Harris's gall-fly really lives on the red oak (*Q. rubra*), its great resemblance to *C. q. aciculata*, occurring on the black oak (*Q. tinctoria*) would no more be a proof of their identity, than the great resemblance of *C. q. inanis* and *spongifica* is of theirs. The two latter gall-flies, although almost perfectly similar in appearance, occur on different oaks and produce quite different galls. It may be that the true *C. confluens* Harris, although closely resembling *C. q. aciculata*, produces on the red oak a



gall, sufficiently different from that of the other species, to be distinguished by constant characters. The synonymy of both therefore, although probable, seems to require further confirmation.

The gall-fly *C. q. aciculata* has been described l. c. p. 56. Its antennæ are 14-jointed, the last joint being separated from the penultimate one by a suture as distinct as that of all the other joints; the 14th joint is very slightly longer than the 13th, and without any apparent transverse impression. This character, common to *C. q. aciculata* and to *C. q. centricola* (of the oak-apple on *Q. obtusiloba*) distinguishes these species at once from *C. q. inanis*, *spongifica* and *coccinæ*, where the last (13th) joint of the antennæ is almost twice as long as the preceding, and shows two indistinct transverse sutures, foreshadowing the 14th and 15th joints of the ♂. The structure of the abdomen of these two groups of gall-flies is also very different. Seen from the side, it appears in *C. q. aciculata* and *centricola* very slightly convex above, the line of its back not rising abruptly above the petiole; the principal curve in the outline of the abdomen is on its under side, so that its side-view is not unlike that of the seed of a *Desmodium*. In *C. q. inanis* and the two other species, on the contrary, the abdomen, seen from the side, appears as convex above as below, its dorsal line rising steeply above the petiole. In the former group the largest or 2nd joint (the petiole being taken for the first) is comparatively longer, occupying almost  $\frac{2}{3}$  of the length of the abdomen, whereas in the other group (*C. q. inanis* etc.) it only reaches its middle. These differences prove that these two groups should, in a rational systematic arrangement, form two genera. It is also worthy of remark that both species of one group (*C. q. aciculata* and *centricola*) are produced by autumnal galls, and escape either late in the fall, or remain in the gall through the winter, whereas, the species of the other group all belong to vernal galls, the gall growing with the leaves and the fly passing through all the stages of its growth between the earliest spring and the end of June.

To the four oak-apple galls just described, have to be added that of *C. q. centricola* O. S., on the post-oak (l. c. p. 58, gall No. 4) and that which I found once on *Q. nigra*, the black-jack oak (see l. c. p. 53, line 14). I have not found it since, but possess in my collection a specimen of a gall-fly, closely resembling *C. q. inanis*, *spongifica* and *coccinæ* and distinguished only by a much more distinct punctation of the abdomen, which specimen, if I remember right, was reared from that gall. (Unfortunately I lost the label indicating its origin.)

I conclude the foregoing descriptions of oak-apple galls, by a synopsis of those at present known to me. I omit the species growing on the black oak, as I know it but imperfectly.

With the spongy substance inside.

Shell thick ; spongy substance very dense.

Broad and rounded on the top ; surface smooth

and glossy ; autumnal gall on *Q. tinctoria* : *C. q. aciculata* O. S.

Attenuated and pointed on the top ; surface

more or less opaque, as if powdered or dust-

ed ; vernal gall on *Q. tinctoria* :

*C. q. spongifica* O. S.

Shell thin and brittle ; spongy substance less dense.

Rounded, almost globular ; surface glossy ; ver-

nal gall on *Q. coccinea* :

*C. q. coccinea* O. S.

With the filaments radiating from the kernel to the shell ; the latter thin and brittle.

More or less globular, not attenuated towards

the basis ; surface glossy ; vernal gall on *Q.*

*coccinea* (or *Q. rubra*) :

*C. q. inanis* O. S.

Somewhat lemon-shaped, that is, attenuated at

both ends, with a distinct nipple on top ; per-

haps a variety of the preceding, as it occurs

apparently on the same kind of oak ?

Gall-fly unknown.

Perfectly globular, smooth, smaller than all the

preceding galls, not drab, but more reddish-

yellow when ripe ; shell although thin, but

harder ; filaments on the inside more dense

and silky ; autumnal gall on *Q. obtusiloba* :

*C. q. centricola* O. S.

## II. GENERAL REMARKS ON THE OAK-APPLE GALLS.

The foregoing chapter records my recent observations on the oak-apple galls of this country. These observations being, however, yet incomplete, leave open several questions to which I now call the attention of future observers. Such questions are :—

1. Are *Cynips q. inanis*, *C. q. coccinea* and *C. q. spongifica* one and the same species ?
2. Have the gall-flies of the oak-apples one or two yearly generations ?
3. The question of the sexes.

1. ARE *CYNIPS Q. INANIS*, *C. Q. COCCINEÆ* AND *C. Q. SPONGIFICA* ONE  
AND THE SAME SPECIES?

We have seen above, that these gall-flies are so similar that I could not find any important characters to distinguish them. Still, it does not follow hence that such characters do not exist. The comparison of a larger number of specimens would probably lead to their discovery.

The supposition that they *are* the same species would involve another one, that the difference between the galls described under the above names is merely due to the organic reaction of different kinds of oak against the sting of one and the same insect. It is obvious however, that this last supposition must be dropped if it is proved that *C. q. coccinæ* and *C. q. inanis* both occur on *Q. coccinea*, of which, as shown already, I am as yet uncertain.

Another fact apparently proving that they are really different species, is the close resemblance of *C. q. cælebs* ♂ to the male of *C. q. spongifica*. The former is only smaller, otherwise it does not differ from the latter more than the females of the three species in question differ from each other. Now *C. q. cælebs* seems to be undoubtedly a different species, as its spindle-shaped gall occurs also on a species of oak about which I am uncertain whether it is *Q. coccinea* or *rubra*. Thus we have *three* different galls, occurring, at the utmost, on *two* kinds of oak, so that, by all means *two* of the galls, and perhaps all the three grow on the *same* kind of oak. It seems obvious, hence, that gall-flies, however similar they may be, must belong to different species if they produce different galls on the same tree and that, at the same season. Mr. Ratzeburg (in his work: *Forst-Insecten*) asserts, from personal observation, that a species of *Cynips* produces the same gall even on different kinds of oak. The european *C. ficumalatrix* of the *Quercus pedunculata* gave this result, when it attacked some american oaks in his garden.

For all these reasons, I believe, therefore, that *C. q. inanis*, *coccinæ*, *spongifica* and *cælebs* are different, although closely allied, species of the same genus.

2. HAVE THE GALL-FLIES OF THE OAK-APPLES ONE OR TWO GENERATIONS?

If they have but one generation, what becomes of the gall-flies escaping in June and the larvæ of which begin to develop nearly a year later, in the buds of the following spring? They may lay their eggs in the buds destined to be developed on the next year, which eggs may remain dormant, till the buds begin to grow. But this remains to be proved. I do

not recollect now having observed any instance of the same kind of oak-apple being sometimes *vernal* (that is, beginning to grow early in the spring, together with the growth of the leaves and producing the fly towards midsummer) sometimes *autumnal* (that is, reaching its full growth later in the summer or in the fall; the fly either escaping late in the fall or remaining in the gall till the following spring). In my former paper I said on p. 56 "I am inclined to agree with Dr. Fitch, who supposes that there are annually two generations of this fly (*C. confluens*).” But I do not remember now whether I founded this opinion on a fact or on a mere probability, and rather believe the latter, as otherwise I would have recorded that fact. The question remains, therefore, undecided.

### 3. SEXES OF THE CYNIPIDÆ.

When I first reared *C. q. cœlebs* ♂, its resemblance to the females obtained from the oak-apples, which, at that time, I called *C. confluens*, started the idea in my mind that they might belong together and that the question of the sexes of the *Cynipidæ* might thus find its solution in the occurrence of the males in galls different in shape from those of the females. The discovery of the four exceedingly similar species recorded above diminishes the importance of the resemblance on which I have based my hypothesis. The latter is moreover apparently altogether unsettled by the rearing of male specimens of *Cynips* from oak-apples. I now possess ♂ and ♀ of *C. q. spongifica*, and Mr. Walsh has reared a ♂ of what seems to be *C. q. coccinææ*. It follows hence that if ♂ and ♀ gall-flies can be reared from oak-apples, the as yet unknown ♀ of *C. q. cœlebs* may also be obtained from a spindle-shaped gall, resembling that of the male. It follows also that the gall-flies, produced by the *vernal* oak-apples of *C. q. coccinææ*, *inunæ* and *spongifica* do not belong to the agamous genera of Hartig. The case is different with the *autumnal* oak-apples. Mr. Walsh informs me that he has now reared over 100 *Cynips aciculata* from oak-apples gathered in the fall, without a single ♂ among them. I have shown already (p. 246) that this species, as well as *Cynips q. centricola* O. S., which is also produced by an autumnal oak-apple, both belong to a genus different from the above vernal gall-flies. This genus therefore must be the true agamous *Cynips sensu strictiori* of Hartig and the question of the male sex remains open for it.

### III. ADDITIONS TO SOME OTHER GALLS DESCRIBED IN THE PAPER ON THE CYNIPIDÆ ETC.

To No. 5. CYNIPS QUERCUS PISUM FITCH (l. c. p. 59).

Last winter Dr. Morris, in Baltimore, gave me an oak leaf, apparently that of a white oak, with several galls on its underside, resembling very much those of *C. q. pisum* Fitch, only that the intervals between the cracks of the net-work were less convex, so that the galls seemed somewhat smoother. On opening the box which contained them, on the 7th of January, I found a wingless gall-fly walking in it. I immediately cut one of the galls open and found that it contained two other similar apterous flies, both alive. Each gall, like those of *C. q. pisum*, contained two cavities, separated by a partition. I am unable to decide whether these gall-flies are the true producers of the gall or merely parasites. The three gall-flies were females. Not knowing exactly to what genus this species should be referred, I call it provisionally:—

*Cynips pesomachoides* n. sp.—Brown, mixed with reddish on head and thorax; legs reddish; wings rudimental; length about 0.12.

Head brown on front and vertex and in the middle of the face, reddish around the eyes; antennæ 14-jointed, brown, somewhat mixed with reddish at the basis, but little shorter than the body; sculpture of the head hardly apparent. Thorax comparatively small, reddish on the back, brown on the pleuræ and the shoulders; finely pubescent; wings reduced to the size of small scales; scutellum small, without any apparent basal pits; its tip somewhat pointed and recurved upwards; feet reddish; basal part of the coxæ brown; the middle of the femora, the external side of the tibiæ and the tarsi, especially their tip, more or less brownish; last joint of tarsi rather large. Abdomen dark brown, shining, with a somewhat bluish (opalizing) reflection. The large 2nd (apparently first) segment, with a yellowish spot on each side. The four following segments are short, slightly, but gradually diminishing in length, the last of them bears below a short double projection, with a fan-shaped pencil of yellowish hairs. The following (in fact the 7th) segment is longer than the preceding but, being narrower, forms an abrupt angle with the hind margin of the latter; it is sparsely pubescent on its surface; the eighth segment above is connected with the preceding by a triangular, whitish membrane; the ovipositor is short and bears a few hairs.

Three ♀ specimens.

To No. 6. CYNIPS QUERCUS TUBICOLA O. S. (l. c. p. 60).

On the first of March, 1862, I obtained a new brood of this insect, from galls collected in autumn. The coloring of the body is variable, being more or less mixed with brown; some of the specimens are altogether dark brown. The antennæ appear to me now 14-jointed and as the abdomen

has the same shape as those of *C. q. centricola* and *aciculata*, it is probable that *C. q. tubicola* has a generic affinity with them, the more so as all these galls are autumnal and produce only females.

To No. 11. CYNIPS QUERCUS PALUSTRIS O. S. (l. c. p. 63).

Galls perfectly similar to those described as occurring on the pin-oak, were observed by me this spring on *Quercus fulcata*, *tinctoria* and *coccinea*. I succeeded in rearing the gall-flies from the two former and could not discover any perceptible difference between them and that of *Q. palustris*, so that my description applies to all. Still, I do not consider my inability to distinguish them as a proof of their specific identity.

My description stated erroneously that the antennæ are 15-jointed in both sexes. In reality they are, as they ought to be, 14-jointed in the females. The last joint, however, is, in most specimens, distinctly divided in two by a slight annular incision. As this incision is more distinct in dry specimens, this was the cause of the error in my description, which I became aware of, as soon as I obtained fresh specimens. In the same way female gall-flies with 13-jointed antennæ generally have an indication of two subdivisions on their last, elongated joint.

Mr. Walsh, in Rock Island, writes me that he also discovered the gall on *Q. tinctoria*. He became likewise aware of my error as to the number of joints of the ♀ antennæ.

#### IV. OAK-GALLS NOT MENTIONED IN THE PAPER: ON THE CYNIPIDÆ ETC.

The following galls have been partly observed by myself, partly communicated to me by other persons since the publication of my paper on the *Cynipidæ*. About some of them, as will be seen below, I am not quite sure, whether they are really the produce of this class of insects.

QUERCUS PALUSTRIS. *Pin Oak. Woody knots on the limbs, emitting pale yellow, conical, brittle projections.* CYNIPS QUERCUS CORNIGERA n. sp. (as yet unknown).

Of all excrescences on oaks in general, the present one, wherever it occurs, is perhaps the most conspicuous, as by its abundance it deforms the tree and seems to cause considerable injury. (It has already been alluded to l. c. p. 55, foot-note.) It consists of woody knots on the limbs, looking usually as if many of them were closely packed together and thus forming

an oblong, woody irregular mass, sometimes two inches or more long. Its most striking character are its slightly curved conical projections, hollow on the inside, which bud forth from all sides of the gall. On dry, dead galls, these horn-shaped projections are for the most part broken off, so that their bases alone are visible, projecting like short tubes from the cracks of the woody tubercle. In order to be able to designate this gall, the development of which I have not been able to investigate completely, I give it as yet unknown originator the provisional name of *C. q. cornigera* n. sp.

After having very frequently observed dead galls of this kind, I finally succeeded on the 13th of May, 1862, to find some young and growing ones. They were of moderate size; their back was greenish and their wood soft and succulent. The conical projections were just beginning to bud forth; when laid bare, by removing with a knife the wood around them, they appeared to extend deep inside of the gall, almost down to the twig. Their color was whitish, their consistency soft, apparently fibrous, and not woody. At that time, they were not hollow yet, and I could not find any larvæ in them. When I brought the galls home, numerous gall-flies, evidently parasitical, began to escape from them. They emerged from hollows in the woody substance between the horn-shaped bodies and had nothing in common with the latter. They resemble the *Cynips* (*Synerges*?) *oneratus* Harris and evidently belong to the same parasitical genus. When I visited the same spot during the latter part of June, I found some of the horn-shaped bodies already projecting about one-tenth of an inch; their substance had become harder and more woody; their inner end had become club-shaped, distinctly isolated from the surrounding wood, so that the whole of these bodies could be easily removed by cutting away the wood around them. On the inside, the inner end was hollow and contained a small larva. This larva is probably that of the true gall-producing *Cynips*, but, unfortunately, I was prevented from watching its growth further.

*Cynips* (*Synerges*?) *lignicola* O. S.—Yellow, black spot on the vertex; upper part of thorax and of the abdomen black; length, ♂ about 0.1; ♀ 0.12.

Head pale yellow with a black spot on the vertex; tips of mandibles black; ♂ antennæ 15-jointed, the third joint with the usual excision below; ♀ antennæ 13-jointed, the last being elongated and showing two slight subdivisions. Collare and pectus yellow; upper and hind part of the thorax black. Legs, including the coxæ, yellow, onychia brown; abdomen brownish-red, black above; it consists apparently of a single, smooth, shining segment, the following segments being

contracted under it, so that its posterior margin projects beyond them. The neck (or first segment) of the abdomen is turgid and longitudinally grooved. The wings are hyaline, the radial area closed; the stout veins pale yellow; the areolet narrow, triangular, its two anterior sides rather indistinct, almost obsolete; the origin of the cubital vein (from the first transverse vein) is obsolete.

Numerous ♂ and ♀ specimens.

*Cynips oneratus* Harris is somewhat larger than this species, it has a black spot on the pectus, so that the middle coxæ are inserted on a black ground; the yellow color is not strictly confined to the collare, as in *C. lignicola*, but extends across the suture on both sides of the dorsum of the mesothorax; at the same time the black of this dorsum encroaches anteriorly on the middle part of the collare, reaching the head; the abdomen is more light yellow, and the black on its upper part is less extended. These characters belong at least to the only specimen of *C. oneratus* in my possession.

**QUERCUS PALUSTRIS.** *Pin Oak.* *Rounded, woody gall on the upper side of the leaves, along the principal ribs.* Diameter upwards to 0.4 to 0.5. Gall-fly unknown.

These excrescences, occurring frequently in autumn, vary in size from 0.15 to 0.4 or 0.5; most of them, however, are about 0.2 or 0.3 long and narrower than their length. Their color is brownish, sometimes more or less yellow, or reddish or with a grey efflorescence; their surface has irregular, more or less deep wrinkles, according to the age or size of the gall; otherwise it is smooth, and has nothing of the deep and regular sculpture of *C. q. pisum*. They somewhat resemble the gall of *Cecidomyia symmetrica* O. S. (see Monographs of N. A. Diptera, p. 200), but project only on one side of the leaf; besides, their outline is more regularly rounded and less deeply cracked. When cut open they show several (commonly three) cells, divided by partitions, somewhat converging towards the middle of the base.

I am not sure whether they are produced by a *Cynips*, the more so as *Cynips*-galls usually occur on the under side of the leaves.

**QUERCUS PALUSTRIS.** *Pin Oak.* *Round, wart-like, rusty-puberlent excrescences on the upper side of the leaf, growing several together.* Diam. of single ones about 0.1.

These galls are not unlike those of *C. q. verrucarum* O. S. (l. c. p. 61, No. 9) of the post oak and similar galls, found on the white and the swamp



chestnut oak, with the important difference, however, that they occur on the upper side of the leaf, whereas, the others are found on the under side. This makes me uncertain, whether they are the produce of *Cynips* or of *Cecidomyia*. I had no opportunity of observing fresh specimens, as those in my possession were communicated to me by Dr. Foreman, who had found them in Maryland. I did not find anything in the hard kernel of those which I cut open.

*QUERCUS PRINOS*, var. *BICOLOR*. *Large gall, at the tip of twigs, consisting of a number of wedge-shaped bodies, fastened by their pointed ends to a common centre. Diameter about an inch and a half. C. q. STOBILANA* n. sp. (as yet not reared).

This gall, one of the most remarkable in my collection, was kindly communicated to me by Dr. Samuel Lewis, in Philadelphia, as found on young branches of this oak, in Hoope's Garden, near West Chester, Penn. For another specimen I am indebted to Dr. Morris, in Baltimore. These specimens measure rather more than an inch and a half in diameter and look somewhat like the cones of some kinds of pine, for instance, of the scrub-pine, as they consist of a number from 20 to 25 or more of wedge-shaped bodies, closely packed together, with their pointed ends attached to a common centre. These wedges are hard and corky and break off very easily when the gall is dry. Each of them contains a hollow kernel with a plump, large larva inside. This gall is evidently produced by the sting of the insect on the single leaves of a bud, each leaf growing into the shape of a wedge. I did not succeed in rearing the larvæ, which were still living when I received the gall. I call the *Cynips* by anticipation *C. q. strobilana*.

*QUERCUS PRINOS*. *Swamp-chestnut Oak. Globular galls on the under side of the leaf, along the principal ribs. Diameter upwards to 0.3. Gall-fly unknown.*

They were communicated to me by Dr. Foreman, who found them in Maryland. Not having seen any fresh specimen, I can only describe the dry and somewhat shrivelled ones. Their surface is finely downy, which gives them a peculiar brownish-cream-colored shade. They contain a kernel in the middle, nearer to their bases, from which numerous woody fibres radiate toward the stout woody shell. They occur in numbers on the same leaf, a moderate sized leaf which is in my possession, bearing eight of them, the largest of which has 0.3, the smallest hardly 0.1 in diameter.

I have no doubt, on account of their structure, that they are the produce of a *Cynips*.

**QUERCUS OBTUSILOBA.** *Post Oak.* Clusters of small, somewhat bell-shaped, petiolate, greenish galls on the under side of the leaves, along the midrib.

Their shape may be compared to that of the flowers of *Vaccinium*. They are attenuated at the basis into a short petiole, fastened to the midrib of the leaf; the opposite end is truncated, the truncature being excavated; the length, from the foot of the petiole to the truncated end, is from 0.12 to 0.15. They grow in numbers, sometimes of ten or more together, so that six, for instance, form a row on one side of the midrib and four or five on the opposite side. When found by me on the tree in October, 1861, these galls were pale green; the dry specimens are brownish. Inside of each was a small whitish larva, probably of a *Cynips*.

**QUERCUS ALBA.** *White Oak.* Clusters of small, round, reddish galls on the petioles of the white oak leaves; inside compact, with a hard kernel. Diameter about 0.15.

Found quite abundantly in October, 1861. I did not describe them at once and the specimens now before me are brown and shrunken. The kernels of those which I opened at that time seemed empty. Still, I believe that the galls belong to *Cynips*, as I found in the box, containing them, a parasitical Cynipideous insect, apparently escaped from them.

**QUERCUS ALBA.** *White Oak?* Large, round gall of a hard corky substance, growing on the branches; a round, hollow space in the centre. Diameter 0.75–0.95. *CYNIPS QUERCUS JUGLANS* n. sp. (as yet unknown).

I found a couple of these galls in winter, on the ground, under an oak, the species of which I was unable to ascertain. Afterwards, Mr. Hitz, of the Maryland Agricultural College, communicated to me a number of these galls, with the statement that they grow on the branches of the white oak. All these galls, as well as those found by myself, were somewhat shrunken and wrinkled on the surface, probably from the effects of dryness. They are easily distinguished from the galls of *C. q. globulus* Fitch by their large size and their much harder substance. It requires some effort to cut them open, whereas, the dry galls of *C. q. globulus* can be easily cracked. For the same reason the kernel of the latter gall can be more easily detached from the surrounding corky substance, than that of the other gall. The greater part of the galls which I cut open contained a cluster of small

evidently parasitical larvæ. In two or three, however, I found a single Cynipideous larva. I did not succeed in rearing it, but obtained several kinds of parasites.

**QUERCUS COCCINEA.** *Scarlet Oak.* Round, somewhat oblong, hollow, pale greenish-yellow gall on the under side of the leaf, slightly projecting on the opposite side; internally, an oblong kernel, kept in its position by filaments, radiating towards the shell. Diameter of the gall about 0.25.

This gall occurs frequently along the margins of the leaf, although sometimes in the middle, near the principal ribs. The shell is rather thin; the kernel 0.1–0.15 long, oblong in shape. Having found this gall in June, I obtained only a parasite.

**UNKNOWN OAK.** Round gall of a hard, corky substance, growing on the branches, its tip drawn out in a point; a hollow kernel in the centre. diameter of the full-grown specimens 0.4–0.5.

These galls were communicated to me by Dr. Morris, in Baltimore, Md. The branches to which they are attached, belong apparently to an oak (they have no leaves). The galls are not unlike those of *C. q. globulus* Fitch in size and structure; only instead of being altogether globular, their tip is extended into a point; their color is more reddish. They are attached in the same way to the young branches, only they seem to occur in much larger numbers crowded together. Whereas, the galls of *C. q. globulus*, observed by me occur either singly, or in clusters of two or three, symmetrically arranged round the limb; one of the branches given to me by Dr. Morris, which is 6 inches long, bears 19 of the galls of the other kind, crowded together in irregular clusters of full-grown and abortive specimens. Another branch 3 inches long bears 9 specimens.

From this gall I have reared a parasitical Cynips and another parasitical hymenopteron.

**QUERCUS NIGRA.** *Black-jack Oak.* Round mass, resembling wool, on the twigs, with numerous seed-like grains inside. **CYNIPS QUERCUS OPERATOR** O. S.

This gall resembles very much the beautiful gall produced on the white oak by *C. seminator* Harris (l. c. p. 69, No. 21). When fresh and growing, it also consists of whitish filaments, forming a white, round body with beautiful pink spots. The inside also contains seed-like kernels. I found the gall in June, on young, flowering branches and obtained on the 23rd of that month the gall-fly which I call:—

*Cynips quercus operator* n. sp.—Reddish: posterior part of the abdomen brownish; wings without discal areolet; ♂ antennæ 14-, ♀ 12-jointed; length of ♂ 0.1, of ♀ 0.12—0.13.

Head yellowish-red, especially on the underside; tip of mandibles brown; antennæ of ♂ 14-jointed; 3rd joint distinctly excised inferiorly; the 4 following joints of about the same length, slightly shorter than the 3rd; the other joints gradually, but slightly diminish in length towards the tip; ♀ antennæ 12-jointed, gradually diminishing in length from the 3rd joint, the longest, except the last joint, which is a little longer and shows a slight indication of a subdivision in three joints. Thorax reddish, very minutely sculptured; the two usual furrows between the collare and scutellum delicate, but distinctly marked; a short groove on each side between them and the basis of the wing; an indication of a pair of other intermediate furrows beginning at the collare and not running farther than the middle of the thorax; scutellum roughly sculptured; its basal pits rather small. Feet pale reddish, except the ungues, the hind tibiæ and the base of the hind tarsi, which are brown. Abdomen brownish-red; its posterior part, especially above, more brown; large (2nd) segment smooth and shining; the other segments with a microscopic punctation. Ovipositor rather long, projecting from its elongated sheath, which is directed upwards. Wings hyaline, very transparent; areolet none; subcostal vein, first and second transverse veins, stout, pale yellowish; last segment of the subcostal vein (usually forming an angle with the remainder of the vein and running towards the anterior margin) obsolete; radial vein and latter part of cubitus pale and subobsolete; the anterior part of cubitus (between the first and second transverse veins), altogether obsolete; anal vein hardly indicated.

2 ♂ and 11 ♀ specimens.

This species is, at first glance, somewhat like *C. q. nigræ* O. S. (l. c. p. 66, No. 17) which produces a swelling on the leaf of the same kind of oak. Their resemblance consist principally in the coloring and in the neuration of the wings, which, in both species have no areolet. The differences, however, are the following (the description of *C. q. nigræ* given in my former paper may be completed from this comparison):—

C. Q. OPERATOR.	C. Q. NIGRÆ.
<i>Size</i> : ♂ 0.1; ♀ 0.12—0.13.	<i>Size</i> : ♂ 0.05; ♀ 0.09.
<i>Antennæ</i> : ♀ 12-jointed, with a distinct indication of a 13th joint.	<i>Antennæ</i> : ♀ 14-jointed; or, if the two last joints are taken for one, 13-, but by no means 12-jointed.
<i>Abdomen</i> : ovate, its dorsal ridge smooth, the segments being closely applied to each other;	<i>Abdomen</i> : much shorter, its dorsal ridge much more convex, the segments being at angles to each other and with intervals between their

its punctation microscopic;  
its color more or less reddish at the  
basis and on the underside.

*Sheath of the ovipositor* long, projecting above the abdomen.

*Hind tibiae* brownish.

*Subcostal and both transverse veins* pale yellowish.

The subcostal forms with the second transverse vein a rounded angle; the branch usually running from it towards the anterior margin is obsolete.

The *radial vein* gradually disappears before reaching the margin.

hind margins and the next segment;

its punctation much more distinct; its color altogether brown.

*Sheath* short, not projecting above the abdomen.

*Hind femora and tibiae* brownish.

These veins pale, colorless.

The branch of the subcostal, running towards the anterior margin is distinct and well defined, although it is abruptly truncated before reaching that margin.

The *radial vein* abruptly stops before reaching the margin.

The aments of the same kind of oak (*Q. nigra*) are sometimes deformed by swellings, covered with white and pink filaments exactly similar to those of the gall of *C. seminator* and *operator*; I suppose, therefore, that they are produced by the sting of the latter gall-fly, although I did not succeed to watch their development.

**QUERCUS VIRENS.** *Live Oak.* Clusters of galls crowded together round a limb, not unlike *C. q. ficus* Fitch in appearance, but much harder.

It was communicated to me by Mr. Glover, who brought it from Florida. The specimen before me is a branch round which, on a length of 2½ inches, 21 galls are crowded together. Their shape seems originally to be round, but from being close together they have assumed all kinds of irregular shapes, the appearance of the whole cluster being well represented by Dr. Fitch's figure of the gall of *C. q. ficus*. Their color is brownish-yellow, mixed with brown. They are much harder than the galls of *C. q. ficus*. Having broken one open, I found in the kernel the remains of a *Cynips*.

**QUERCUS VIRENS.** *Live Oak.* Woody swelling of the limb.

The specimen, communicated by Mr. Glover, is a fragment of a branch about 1½ inches long with two such swellings; the one is rounded about

0.7 long and 0.5 broad ; the other much smaller. I opened the latter and found on the inside a small empty hollow from the structure of which I have no doubt that the gall is the produce of a *Cynips*.

*QUERCUS VIRENS.* *Live Oak.* *Small, round, wooly galls on the underside of the leaves.*

They are not unlike the galls of *C. q. verrucarum* and the analogous galls, only the wool is much longer. It seems that each gall consists of a hard kernel, covered with this pale yellow wool and that they occur in numbers together. Communicated by Mr. Glover. Undoubtedly a *Cynips*.



PROCEEDINGS  
OF THE  
ENTOMOLOGICAL SOCIETY  
OF PHILADELPHIA.

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VOL. 1. OCTOBER, NOVEMBER & DECEMBER, 1862. No. 9.

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STATED MEETING, OCTOBER 13.

Vice-President BLAND in the Chair.

Fifteen members present.

DONATIONS TO CABINET.

10 COLEOPTERA (*Calosoma striatulum*, *Necrodes analis*, *Euryomia canescens*, *Chrysobothris sexsignata*, *Corymbites propola*, *Odontonyx ornata*, *Emmesa connectens*, *Toxotus Schaumii*, *Toxotus trivittatus*), from George Newman.

3 COLEOPTERA (*Hister planipes*, *Cistela marginata*, *Centrodera sublineata*), and 5 DIPTERA (*Trypeta æqualis*, *Trypeta seriata*), from James Ridings.

4 COLEOPTERA (*Hister subopacus*, *Arhopalus infaustus*, *Clytus nauticus*), from John Pearsall.

4 DIPTERA (*Volucella evecta*), from Charles Wilt.

2 DIPTERA (*Olfersia americana*), from William Wenzel.

1 DIPTERA (*Trypeta festiva*), from William Evett.

1 COLEOPTERA (*Nemognatha nemorensis*), from James H. B. Bland.

1 COLEOPTERA (*Oberea gracilis*), from E. T. Cresson.



## DONATIONS TO LIBRARY.

*Prairie Farmer* (Chicago, Ill.), Nos. 11 to 15 of Vol. 10. From the Editors.

*Proceedings of the Boston Society of Natural History*, Vol. 9, pages 66 to 112. From the Society.

*Proceedings of the Society for August and September, 1862.* From the Publication Committee.

The following works were deposited by Dr. T. B. Wilson:—

*List of the specimens of British Micro-Lepidoptera in the Collection of the British Museum.* By H. T. Stainton. 1 Vol. 12mo.

*Catalogus Hemipterorum.* Auctore Anton Dohrn. 1 Vol. 8vo.

*List of the specimens of Hemipterous Insects in the collection of the British Museum.* By W. S. Dallas. 2 Vols. 12mo.

*British Butterflies and their transformations.* By J. O. Westwood. 1 Vol. 4to.

*Monographie des Elatérides.* Par M. E. Candèze. 3 Vols. 8vo.

*Archives Entomologiques.* Par James Thomson. 2 Vols. Royal 8vo.

*Introduction à l'Entomologie (Suites à Buffon).* Par M. Th. Lacordaire. 2 Vols. 8vo.

*Histoire Naturelle des Insectes Lépidoptères (Suites à Buffon).* Par Boisduval et Guenée. 7 Vols and Atlas. 8vo.

*Histoire Naturelle des Insectes Coléoptères (Suites à Buffon).* Par M. Th. Lacordaire. 6 Vols., and Atlas. 8vo.

*Histoire Naturelle des Insectes Aptères (Suites à Buffon).* Par M. le Baron Walckenaër. 4 Vols., and Atlas. 8vo.

*Histoire Naturelle des Insectes Orthoptères (Suites à Buffon).* Par M. Audinet Serville. 1 Vol. 8vo.

*Histoire Naturelle des Insectes Névroptères (Suites à Buffon).* Par M. P. Rambur. 1 Vol. 8vo.

*Histoire abrégée des Insectes.* Par M. Geoffroy. 2 Vols. 4to.

*Annales de la Société Entomologique Belge.* 5 Vols. 8vo.

*Systema Eleutheratorum.* J. C. Fabricii. 2 Vols. 8vo.

*Systema Piezatorum.* J. C. Fabricii. 1 Vol. 8vo.

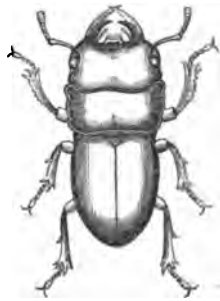
*Prémices Entomologiques.* Par J. Putzeys. 1 Vol. 8vo.

*Materials towards a History of the Coleoptera Longicornia of the United States.* By S. S. Haldeman. 1 Pamphlet. 4to.

## WRITTEN COMMUNICATIONS.

A communication was read from Mr. Bland, stating that he had collected near DaCosta, Atlantic County, New Jersey, during the latter part of last July, a specimen of *Cicindela abdominalis*. Being in the habit of visiting in that vicinity for the last three seasons, he has succeeded in capturing only one specimen of this rare insect on each visit, or three specimens in three seasons, all within a few yards of each other. He varied the time and searched diligently, but could find only the one in a season. This circumstance being remarkable, has led him to place it upon record.

Mr. Bland also stated that he had lately received, from the same locality as the above, a male specimen of *Dorcus brevis* Say. This very rare insect had been lost from our fauna from 1831 until three years since, when it was recovered by Mr. G. W. Quinn of this city, who also collected the specimen lately received, both from the same locality and both were dead when found, lying in the open road. The three specimens so far known to him were found within a few miles of each other and in the months of July and August. The specimen in the collection of the Society (from which the accompanying figure was made) is a male, it was captured alive near Weymouth, N. J., and is in splendid condition. Of the other two, one, a female, is in the collection of Dr. Leconte, the other, a male, is in Mr. B's collection, both being more or less imperfect. On account of the extreme rarity of this fine insect, Mr. B. has not been able to learn anything of its habits.



The following papers were presented for publication in the Proceedings: "Descriptions of several supposed new species of Cerambycidae in the collection of the Entomological Society of Philadelphia, and observations upon some already described, by Jas. H. B. Bland." "Description of a species of *Ægeridæ* from Virginia, supposed to be new, and observations upon *Papilio Daunus*, by James Ridings."

And were referred to Committees.

## ELECTIONS.

The following gentlemen were unanimously elected Corresponding Members of the Society:—

Prof. Henry Croft, D. C. L., of Toronto, Canada.

Rev. Charles J. S. Bethune, B. A., of Cobourg, Canada West.

William Saunders, London, of Canada West.

S. S. Rathvon, of Lancaster, Pennsylvania.

Jacob Stauffer, of Lancaster, Pennsylvania.

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## STATED MEETING, NOVEMBER 10.

Vice-President BLAND in the Chair.

Thirteen members present.

### REPORTS OF COMMITTEES.

The Committees on the papers of Messrs. Bland and Ridings, read October 13th, reported in favor of their publication in the Proceedings of the Society.

### DONATIONS TO CABINET.

15 HYMENOPTERA (*Cynips quercus spongifica* O. S. ♂ ♀, *C. q. strobilana* O. S., *C. q. tubicola* O. S., *C. q. operator* O. S., *C. q. palustris* O. S., *C. q. tuber* Fitch, *C. seminator* Harris, *Synerges? lignicola* O. S.) and a beautiful collection of oak-galls produced by the following flies:—*Cynips quercus spongifica* O. S., *C. q. fusus* O. S., *C. q. tuber* Fitch, *C. q. juglandis* O. S., *C. q. corniger* O. S., *C. q. tubicola* O. S., *C. q. pisum* Fitch, *C. q. globulus* Fitch, *C. q. irregularis* O. S., *C. q. papillata* O. S., *C. q. inanis* O. S., *C. q. verrucarum* O. S., *C. q. coccineæ* O. S., *C. q. futilis* O. S., *C. q. phellos* O. S., *C. q. cælebs* O. S., *C. seminator* Harris, and other galls of which the flies are yet unknown, from Baron R. Osten Sacken.

5 COLEOPTERA (*Eburia? Ulkei* Bland, ♂ ♀ (Types), *Monilema subrugosum* Bland, ♂ ♀ (Types), *Oxophus coralinus*), from Henry Ulke.

2 COLEOPTERA (*Callidium? albofasciatum* Bland (Type), *Callidium semicircularis* Bland (Type), from George Newman.

2 COLEOPTERA (*Tylistus similis*), from William Wenzel.

1 COLEOPTERA (*Monilema lævigatum* Bland (Type), from Charles Wilt.

1 COLEOPTERA (*Crossidius pulchrior* Bland, ♀ (Type), from J. Pearsall.

1 COLEOPTERA (*Tylistus similis*), from Jacob Stauffer.

## DONATIONS TO LIBRARY.

*Prairie Farmer* (Chicago, Ill.), Nos. 16, 17 and 18 of Vol. 10. From the Editors.

*Fire Blight: two new foes of the Apple and Pear.* By Benj. D. Walsh. From the Author.

*On the genus Colias in North America.* By Saml. H. Scudder. From the Author.

*Smithsonian Report for 1861.* From the Smithsonian Institution.

The following works were deposited by Dr. T. B. Wilson :—

*Die Arachniden.* Von Hahn & Koch. 16 Bands in 8 Vols. 8vo.

*Die Wanzenartigen Insecten.* Von Hahn & Herrich-Schäffer. 9 Bands in 5 Vols. 8vo.

*Entomologia Systematica.* J. C. Fabricii. Tom. 1 to 4, Indices and Supplementum. 6 Vols. 8vo.

*Monographie des Caloptérygines.* Par E. de Selys-Longchamps. 1 Vol. 8vo.

*Monographie des Gomphines.* Par E. de Selys-Longchamps. 1 Vol. 8vo.

*Synopsis des Gomphines.* Par E. de Selys-Longchamps. 1 Vol. 8vo.

*Revue des Odonates.* Par E. de Selys-Longchamps. 1 Vol. 8vo.

## WRITTEN COMMUNICATIONS.

Letters were read from Jacob Stauffer, dated Lancaster, Pa., Oct. 15th, 1862, S. S. Rathvon, dated Lancaster, Pa., Oct. 18th, 1862, Rev. Chas. J. S. Bethune, dated Cobourg, C. W., Oct. 22nd, 1862, and William Saunders, dated London, C. W., Oct. 22nd, 1862, acknowledging their election as Corresponding Members of the Society.

A communication was read from Mr. Jacob Stauffer, dated Lancaster, Pa., Oct. 22nd, 1862, exhibiting drawings of a Puff-ball, a species of *Scleroderma*, found in a wood near Lancaster, Sept. 15th, 1861, and also of a species of a small beetle which he had bred from it. He states, that on cutting open the Puff-ball it contained numerous minute larvæ embeded in the dark flocculent matter. The imago is not one tenth of an inch in length, dark, covered with short, stiff, yellowish hairs. He supposed it to be a species of *Lycoperdina*, but had no means of deciding the question. Mr. S. also submitted, for further confirmation, a few drawings and notes on the differences between the larvæ of *Papilio glaucus* and *turnus*. The larva of *glaucus* (which was taken from the grape-vine, detected in biting off entire bunches of green grapes) was brown, having a single row of light blue spots on the hinder margin and dorsally mottled with darker ir-

regular markings; the larva of *turnus* (which was taken from the *Sassafras*) was pea-green above with a yellow edging, beneath pale purplish-brown. He therefore says "The query is:—if, as some suppose, the *P. glaucus* and *turnus* are merely *sexual* varieties, then it follows that the larvæ differ as essentially as do the perfect insects, both in color and habit, leaving a doubt as to the fact of the two being but male and female of the same species."

The following papers were presented for publication in the Proceedings: "Metamorphoses of *Ceratonia quadricornis*, Harris, by J. A. Lintner." "On the genera of *Aphidæ* found in the U. States, by B. D. Walsh, M.A." And were referred to Committees.

#### VERBAL COMMUNICATIONS.

Mr. Bland stated that the Puff-ball beetle communicated this evening by Mr. Stauffer, is a species of *Tylistus* and was described by Say as *Dorcatoma simile*; it belongs to the family *Ptinidæ*, which, in the present classification of Coleoptera, is located some distance from *Endomychidæ* to which Mr. S. supposed it belonged. It was, however, very interesting to know something of the habits of this little insect and he hoped that the Society would place upon record the discovery which Mr. S. has made.

Mr. Ridings stated that he was quite satisfied that *Papilio glaucus* is only a black female of *P. turnus*. He had taken a black female in connection with a yellow male as long ago as 1832, and since that time he has taken females of all shades from a deep black to a dark yellow, but never observed or heard of a female being as light colored as a male, neither a male as dark colored as a female. He also stated that the larvæ of *turnus* do not confine themselves to any particular food-plant, although about Philadelphia they generally feed upon the Tulip-Poplar. In 1843 Mr. David Dyson came over from England and made extensive collections of insects &c., in the United States; he took with him on his return to England a number of both sexes of *P. turnus* and was the first to make known to Mr. Doubleday that *P. glaucus* was only a black female of *P. turnus*.

On motion, the thanks of the Society were voted to Baron R. Osten Sacken for his beautiful donation of oak-galls &c., made this evening.

On ballot, Messrs. William S. Wilson, C. Ernest Seeber and Edward A. Manuel, all of Philadelphia, were elected *Resident Members*; and Messrs. J. A. Lintner of Schoharie, N. Y., D. W. Beadle of St. Catherines, C. W., William Couper of Quebec, Canada, B. Billings of Prescott, C. W., and

Rev. George S. J. Hill of Markham, C. W., were elected *Corresponding Members* of the Society.

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Descriptions of several supposed new species of CERAMBYCIDÆ in the Collection of the Entomological Society of Philadelphia, with observations on some already described.

BY JAMES H. B. BLAND.

In this paper I propose to describe several species of Cerambycidæ of which I have not been able to find descriptions and therefore suppose them to be undescribed. In the collection of the Society there are many species of Coleoptera yet unnamed, and I have determined to study them carefully, and if no satisfactory description of them can be found, I will venture to describe them as plainly as possible, and should synonyms be created by so doing (as is often unavoidable), I will cheerfully acknowledge them as such and give the rightful author the priority.

MONILEMA LÆVIGATUM n. sp.

Shining black, smooth; a shallow depression on the disk of the thorax near the posterior margin; a number of deep, irregular punctures about the humeri and the angulation of the elytra.

*Hab.* Kansas, near the Rocky Mountains.

Body shining black, smooth, elongate, convex. Head feebly punctured, with a longitudinal impressed line on the top. Antennæ about two-thirds the length of the body; rather slender. Thorax smooth, a shallow depression on the disk near the posterior margin; lateral tubercle very short, obtuse and nearly obsolete; anterior margin slightly elevated, furnished with short, light colored cilia; a row of deep punctures at the posterior margin. Scutellum broad and rounded, minutely punctured. Elytra smooth, shining, convex and a little shorter than the abdomen; sides suddenly deflexed; between the suture and the angulation of the elytra are two indistinct, longitudinal, elevated lines not reaching the apex (which are better seen when the specimen is held in a certain light); a number of deep, irregular punctures about the humeri, base of epipleuræ and extending a short distance down on the angulation of the elytra; tip truncate, slightly rugose. Abdomen minutely punctured, rounded at tip. Legs minutely punctured, with a few scattered punctures of a larger size; tibiæ, on the tip and inner edge, and tarsi clothed with short appressed hairs; middle tibiæ slightly notched on the outer edge near the tip; tarsi fulvous beneath. Length 9 lines.

This species was collected by Mr. W. J. Howard in Kansas near the Rocky Mountains, and presented to the Society by Mr. Charles Wilt. Three specimens have been examined, in one of which the sides of the thorax have several depressions, and the fourth joint of the antennæ is annulated with cinereous, in the others the antennæ are entirely black; on the disk of the elytra several stray punctures are visible here and there, but in all three specimens the punctures are grouped about the humeri and along the angulation of the elytra.

This species may resemble *M. lævidorsale* White, from Mexico, of which a very short and meagre description is given in the Proceedings of the Zoological Society of London, 1856, p. 407; but the punctation of the elytra seems to be differently arranged.

*MONILEMA SUBRUGOSUM* n. sp.

Shining black; fourth joint of the antennæ annulated with cinereous; dorsal surface of the thorax opaque; elytra coarsely punctured, somewhat rugose.

*Hab.* Cape St. Lucas, Lower California.

♀. Body elongate, shining black. Head bright on the front and cheeks, opaque on the top, more closely punctured on the front than on the vertex; a slight dorsal impressed line not extending down the front. Antennæ about two-thirds the length of the body, stout, punctured, the punctures on the basal joint deeper and closer, fourth and following joints clothed with very fine, black, silky pubescence, a cinereous annule on the fourth joint. Thorax about as long as broad; disk opaque, sides shining; closely and finely punctured, the punctures larger and more distinct on the sides; a smooth spot on the disk; posterior margin shining, with an uneven row of deep punctures; lateral tubercle obsolete. Scutellum large, broad, rounded and sparsely punctured. Elytra shining black; convex; sides suddenly deflexed; little shorter than the abdomen; coarsely punctured, the punctures closer and more profound at the base about the humeri and at the angulation of the elytra, and more sparse and less deep on the disk, becoming obsolete on the tip which is covered with wavy lines and with the suture rugose. Last dorsal segment of the abdomen extending beyond the elytra, sparsely and distinctly punctured; ventral segments shining, finely punctured, more sparse on the sides, last segment slightly emarginate at tip. Legs stout, densely punctured; tibiæ and tarsi clothed with short black hairs; tarsi fulvous beneath. Length 13 lines.

♂. Smaller and more robust than the ♀, the lateral thoracic tubercle is not visible, the elytra are more roughly and deeply punctured and somewhat rugose, the rugosity extending over the disk and apex alike, and the last dorsal segment of the abdomen does not extend beyond the elytra which are strongly and somewhat abruptly deflexed posteriorly. Length 9 lines.

Were it not for the elongate form, this species might prove to be a variety of *M. crassum* Lec., which I have not seen, and which is said to resemble *M. annulatum* Say, but the species just described seems to have no particular similarity with Say's species, the much more elongate form, the differently shaped thorax, and the narrow form of the elytra, caused by their suddenly deflexed sides, give this species altogether a different appearance. I do not, therefore, see any other but a generic similarity between them.

For a pair of this fine insect, the Society is indebted to Mr. Henry Ulke.

DESMOCERUS ELONGATUS n. sp.

Obscure bluish-black, densely punctured; elytra clothed with golden-yellow hairs.

*Hab.* Virginia.

♀. Body dull bluish-black, elongate, densely punctured. Head black, irregularly and sparsely punctured; a deep longitudinal sulcus on the vertex. Antennæ clothed with short black hairs; third, fourth and fifth joints slightly nodose. Thorax uneven, transversely rugose; a rather deep impression along the posterior margin; lateral tubercle almost obsolete. Elytra obscure greenish-blue, clothed with golden-yellow hairs which become obsolete towards the tip; anterior portion deeply and closely punctured and somewhat rugose; posterior portion much more finely and regularly punctured. Under surface bluish-black, shining, finely punctured and clothed with short black hairs. Legs rather coarsely punctured and clothed with short black hairs. Length nearly an inch.

Should this species prove to be identical with *D. palliatus*, it will certainly be a singular variety. The 3rd and 4th joints of the antennæ are scarcely more nodose than the 5th joint in *palliatus*; the body is more linear and the elytra are entirely dull greenish-blue. It was collected in Hampshire County, Virginia.



## TOXOTUS TRIVITTATUS (Say).

In the early part of the present year we received into the Society's collection, from Mr. George Newman, a very fine ♂ specimen of a *Toxotus*, collected by him in the vicinity of Philadelphia. Upon examination, I find that it answers to the description of *Rhagium trivittatum* Say, in every respect. The great difference in color between this species and *Toxotus* (*Leptura*) *vittiger* Randall, which has been generally supposed to be identical with it, has led me to make a careful examination of them. In a large series of 30 or 35 (♂ and ♀) specimens of *vittiger*, I cannot detect any variation in the coloring, which, excepting the elytral vittæ and the abdomen, is black, and the 3rd joint of the antennæ is half again as long as the 5th; whereas, in *trivittatus* the color is reddish-yellow, and the 3rd and 5th joints of the antennæ are about equal. I, therefore, feel confident that they are distinct species.

## GAUROTUS ABDOMINALIS n. sp.

Black; antennæ, except first and second joints, legs and abdomen fulvous; elytra bright metallic green.

*Hab.* Virginia.

Body black, punctured, clothed with short, yellowish hairs. Head very closely punctured on the vertex; mouth piceous. Antennæ fulvous, first and second joints black. Thorax black, shining, slightly punctured; suddenly contracted anteriorly and slightly posteriorly, with a dorsal sulcus and an anterior and a posterior impressed band. Scutellum black, somewhat conical and rounded at tip. Elytra bright metallic green, distinctly and profoundly punctured; humeri prominent; tip slightly truncate. Abdomen and legs fulvous. Length 5 lines.

This species closely resembles *G. cyanipennis* (Say), of which it may possibly prove to be a variety; but the form of the thorax and the color of the abdomen and the first and second joints of the antennæ, are so different, that I believe it to be a distinct species. It was collected in Hampshire Co. Va., and presented to the Society by Dr. T. B. Wilson.

## EBURIA? ULKEI n. sp.

Dark piceous; head deeply impressed in front and having two crest-like elevations at the base of the antennæ, separated by a dorsal stria; thorax scabrous, lateral spine long and very acute; a small, round, orange-colored elevation at the base of each elytron between the humerus and scutellum.

*Hab.* Cape St. Lucas, Lower California.

♀. Body elongate, dark piceous. Head punctured, disk of the throat smooth, shining, sides obliquely wrinkled; front hairy, deeply impressed; two oblique, sulcate, somewhat acute elevations at the base of the antennæ, separated by a dorsal stria and giving the front the appearance of being horned or eared; on the vertex, between the eyes, are two longitudinal elevations thickened posteriorly but not extending beyond the eyes and also separated by the dorsal stria; eyes large, prominent and coarsely granulated; palpi reddish-brown; mandibles strong, acute, rugose at base. Antennæ about as long as the body, clothed with light colored hairs; 11-jointed, first joint robust, rather long, clavate and roughly punctured with a longitudinal, abbreviated groove on the outside, second joint very short, third joint longer than the fourth, the following joints about equal. Thorax scabrous; disk with two obtuse elevations and a smooth spot behind them; lateral spine prominent and acute; an obtuse elevation on each side before the spine; posterior margin depressed, rather smooth; anterior margin fringed with light colored cilia. Scutellum quadrate. Elytra broader than the thorax, smooth, except a few indistinct scattered punctures about the base; three longitudinal elevated lines on each elytron, becoming obsolete on the tip, the lateral one, which is on a line with the humerus, is somewhat uneven and acute, the other two are not so distinct; between the humerus and scutellum there is a small, round, orange-colored elevation from which proceeds the innermost elevated line; humerus prominent, with a small obtuse tubercle below; tip with two rather short, acute, terminal spines. Legs slender; each femur armed with two terminal spurs which are obsolete on the anterior pair; tibiæ and tarsi yellowish sericeous. Length 13 lines.

In the male specimen the antennæ are half again as long as the body and the elevated lines of the elytra are obsolete.

Although I have referred this species to the genus *Eburia*, I have some doubts of it being properly located, as it seems to differ in several particulars, which may be of enough importance to be recognized as a separate genus. The sculpture of the head (of which Fig. 1 will give an idea), is very remarkable.

I have named this species after my friend Mr. Henry Ulke, whose labor and zeal in Entomology, I endeavor to acknowledge, and to whose liberality the Society is indebted for this and many other valuable additions to its collection.

Fig. 1.



*ERIPHUS PEARSALLI* n. sp.

Rufo-sanguineous, hairy; elytra with a black dilated sutural vitta.

*Hab.* Nebraska.

Body rufo-sanguineous, shining, punctured. Antennæ black, second joint dark rufous. Thorax convex, rounded, with a few scattered punctures furnishing long, erect, blackish hairs. Elytra regularly and deeply punctured, the punctures becoming larger and more distant towards the base; clothed with long blackish hairs which are erect at base and prostrate and shorter towards the apex of the elytra; a black sutural vitta commencing at the anterior third and gradually dilated posteriorly, where it is rounded to the suture but does not quite reach the tip. Post-pectus black. Legs rufous; femora, anterior and middle tibiæ black at tips; posterior tibiæ and tarsi black. Length 5 lines.

Collected near Fort Benton, on the upper Missouri, by Mr. John Pearsall after whom I have named it. This species was received into the collection of the Society as *E. discoideus* (Say), but I find upon comparison with Say's description that it is quite distinct, and I have not been able to refer it to any other description. It differs from *discoideus* by not having a black head and scutellum, by the punctuation of the thorax not being deep, by the hairs on the elytra not being very short and obsolete, and by the color of the feet, which, however, as with *suturalis*, is subject to variation. From *rutulans* it differs by not having the head and feet entirely black. From *suturalis* by the punctuation of the thorax being more distinct, by the color of the second joint of the antennæ being dark rufous, by the punctures of the elytra being more numerous and comparatively smaller, by the presence of the sutural vitta, and by the size which is greater. From *ruber* it differs by the color of the antennæ, by the much more distinct punctuation of the thorax, and by the presence of the sutural vitta. It may possibly prove to be a variety of one of the above species after more specimens have been accumulated, but at present it is quite as distinct as some of the species now recognized.

*CROSSIDIUS PULCHRIOR* n. sp.

Rufo-testaceous; antennæ, head, base and the large mark on the disk of the elytra, postpectus and legs black.

*Hab.* Nebraska.

♀. Body punctured and clothed with pale hairs. Head black, roughly punctured; antennæ two-thirds the length of the body, black, punctured.

Thorax convex, rounded on the sides, broader than long, bright rufous above, paler beneath, regularly and distinctly punctured. Scutellum black. Elytra rufo-testaceous; a large black mark on the disk occupying more than half the superficies, suddenly dilated posteriorly, but not quite reaching the lateral margin or apex of the elytra, its anterior outline is suddenly contracted to the suture above the middle and extends upwards to the scutellum and from thence across, covering the humerus (see Fig. 2); deeply and closely punctured, the punctures becoming larger towards the base; tip rounded, unarmed. Abdomen rufo-testaceous. Postpectus black. Legs black, clothed with pale hairs which are longer on the posterior pair. Length 4 lines.



This beautiful little insect was collected by Mr. John Pearsall, on a flower, near Fort Benton on the upper Missouri. It is closely allied to *C. pulchellus* Lec., but is quite distinct by its color; the punctuation of the elytra is closer and more distinct and the sides of the thorax are rounded and not angulated.

I will here state that in the four specimens of *C. pulchellus* Lec., in the collection of the Society, there seems to be some variation in the markings of the sexes. In the two ♂ specimens the thorax is entirely black above and beneath and the first and second segments of the abdomen are blackish. In the two ♀ specimens the sides of the thorax beneath are yellowish and also all the segments of the abdomen. In one ♀ the lateral outline of the large spot on the elytra is dilated posteriorly, as in *pulchrior*; in the other three specimens it continues straight to the tip.

#### CLYTUS (RHOPALOMERUS) ARANEIFORMIS (Oliv.).

A specimen of this pretty insect was captured on a wood-wharf in Philadelphia, by Mr. J. D. Dowling, and presented by him to the Society. Olivier described and figured it (Ent. 4, 61, No. 70, Pl. 7, fig. 90) as coming from St. Domingo, and never having heard before of its occurrence in the United States, I propose here to give a detailed description of it and a figure to convey a better idea of the markings of the elytron, as represented in the specimen before me; the figure given by Olivier being poorly executed, does not show the markings of the elytra correctly.



Black; head finely punctured, covered with whitish pubescence which is parted on the front between the eyes; mouth rufous, mandibles tipped

with black. Antennæ rufous, first joint long and clavate, second joint very short, third and fourth equal, both together about as long as the first, fifth and following joints suddenly larger and strongly serrate, last joint attenuated. Thorax black, finely punctured, clothed with whitish pubescence, convex, sides rounded; two small tubercles on each side; on the disk there are apparently three series of interrupted, transverse, acute carinæ; a rufous spot beneath between the anterior coxæ. Scutellum black, margined with whitish. Elytra slightly attenuated posteriorly; velvety-black, brownish about the base; a narrow, somewhat oblique, whitish band extending from the humerus to the suture down which it continues to the anterior third, where it becomes suddenly angulated upwards and then downwards, forming half of the letter M; a little above the posterior third, on the suture, there is a hook-shaped white mark which is suddenly dilated at the posterior fourth into a knob, from thence it margins the suture and tip of the elytron; a small dot at the posterior third near the lateral margin (which may, in some specimens, become confluent with the hook-shaped mark, nearly opposite, on the suture); tip rounded from the suture and armed with a strong acute spine. Postpectus and abdomen rufous, blackish on the sides; between the middle coxæ commences a narrow, oblique, white band which extends along the side of the postpectus, and reaches the margin of the elytron where it suddenly expands into a knob; a white spot behind the posterior coxæ, and two very small, approximate white spots before and between the coxæ; first, second and third segments of the abdomen marked on the sides with white, the second segment bearing the largest mark. Coxæ and legs rufous, hairy, posterior pair very long; femora clavate, muricate and armed at their tips with two strong acute spurs which are obsolete on the anterior pair; posterior femora tipped with black; tibiæ flattened, terminal spurs long and acute on the posterior pair. Length  $5\frac{1}{2}$  lines.

The markings on the elytra and abdomen are composed of white scale-like hairs which lie close to the surface of the body. This species belongs to Chevrolat's division, *Rhopalomerus*.

*CALLIDIUM? ALBOFASCIATUM* n. sp.

Black; antennæ brown, third joint twice the length of the fourth; each elytron with two white transverse marks.

*Hub.* Pennsylvania.

Body black, long, narrow and somewhat flat, hairy, punctured. Head

finely punctured; mouth fulvous; eyes with golden reflections. Antennæ brown, filiform, nearly as long as the body, beset on the inside with rather long, stiff, whitish hairs; 11-jointed, second joint very short, third joint twice the length of the fourth which is shorter than the fifth. Thorax black on the disk, brownish on the sides and beneath, wider than the head, narrowed posteriorly, sides rounded, distinctly and irregularly punctured; three rather indistinct smooth elevations on the disk. Scutellum large and rounded. Elytra rather wider than the thorax, finely punctured; deeply impressed on the suture behind the scutellum; on each elytron, before the middle, there is a somewhat oblique, narrow, white mark, slightly angulated on the lateral margin but not reaching the suture, and at the posterior fourth, a broader, transverse, white mark, not confluent with either the lateral margin or the suture; tip rounded, entire. Abdomen black; coxæ fulvous. (Unfortunately the legs are missing.) Length 3 lines, breadth less than one line.

At first appearance this insect looks like a small variety of *C. varians*, the markings of the elytra have the same position, but the form of the body is much more linear. The difference in the antennæ is sufficient to render it distinct and probably refer it to another genus; in this species the third joint of the antennæ is twice as long as the fourth, whereas in *C. varians* the third, fourth and fifth joints are about equal. It was collected in the neighborhood of Philadelphia by Mr. George Newman, and presented by him to the Society.

CALLIDIUM (PHYMATODES) SEMICIRCULARIS n. sp.

Reddish-brown; a white band on each elytron enclosing a rather large, semicircular, black spot.

*Hub.* Pennsylvania.

Body reddish-brown, clothed with rather long whitish hairs. Antennæ brown, basal joint reddish-brown, sparsely clothed with long white bristly hairs. Thorax flattened, rounded on the sides, with a smooth dorsal line. Scutellum covered with whitish pubescence. Elytra black, anterior third reddish-brown; a little above the middle on the lateral margin of each elytron commences a white band which is angulated anteriorly and becomes confluent with the suture down which it extends in a narrow line to the posterior fourth where it widens and crosses again to the lateral margin, enclosing a rather large semicircular black spot (see Fig. 4); clothed with whitish hairs which are long



and erect at the base and very short and prostrate towards the tip. Abdomen brownish-black, densely hairy; femora reddish-brown, posterior pair very large and strongly clavate; tibiæ brown, with long whitish hairs; tarsi brown. Length 5 lines.

This insect has been for some time considered a variety of *C. varians*, but the markings of the elytra are so peculiar, that I have been prompted to describe it as distinct. The posterior thighs are larger than in any specimen of a large series of *variens* now before me, and I cannot detect in any of them an inclination to vary as in the specimen I have just described. For this beautiful insect the Society is indebted to Mr. George Newman, who collected it in the vicinity of Philadelphia.

#### PURPURIGENUS HUMERALIS (Oliv.).

In the collection of the Society there are two beautiful varieties of this fine insect, both captured in the neighborhood of Philadelphia and presented by Mr. George Newman.

A large male specimen, measuring nearly an inch in length, has almost the anterior half of the elytra, except the scutellum, covered with the bright red color. The tubercles on the disk of the thorax, the humeri and the elevated lines on the elytra are more prominent than in any specimen of *humeralis* that I have seen. The mark of the elytra is the same as in *axillaris*, but the color is bright red, the punctuation is closer, deeper and more distinct, the suture is obtusely armed, and the size is much greater. However, this being an intermediate variety between *humeralis* and *axillaris*, it is probable that varieties will yet occur which will prove that they all belong to the same species.

In a female specimen the variation is beautiful. The humeral marks of the elytra are shaped as usual, but are of a brilliant vermillion color; on the disk and on each side of the thorax there is a blotch of the same color, covering the tubercles which are, however, somewhat blackish at their tips; the mark on the disk is triangular, and the tubercles are prominent and acute.

In some specimens the humeral marks of the elytra do not reach the scutellum which is always black, and the color varies from a bright orange to a bright vermillion.

Description of a supposed new species of *ÆGERIDÆ* from Virginia,  
and observations upon *PAPILIO DAUNUS* Bois.

BY JAMES RIDINGS.

*ÆGERIA? QUINQUE-CAUDATA* n. sp. (Fig. 1.\*)

Blue-black, shining; wings opaque, except the base of the secondaries which is limpid; abdomen with five tail-like appendages, and the third dorsal segment red.

*Hab.* Virginia.

♂. Body shining blue-black. Antennæ two-thirds the length of the body, stout, ciliate on the inside, apex strongly curved, and tipped with a pencil of hairs. Palpi shining black, obliquely ascending, first and second joints stout, pilose, third joint naked, slender, rather long and acute. Spiral tongue long, yellowish. Thorax black, glossy, densely pilose. Abdomen somewhat cylindrical, slightly broader near the apex, with seven segments, bluish-black, shining, third dorsal segment bright red with the anterior margin black; from the posterior margin of the sixth segment proceeds four tail-like appendages, one on each side and two on the top; those on the top are rather more than two lines long, thickened or tufted at their tips, and somewhat erect; from the top of the seventh segment, which is long and narrow, arises another tail-like appendage almost two lines long, and also tufted at the tip and somewhat erect. Legs brownish-black; posterior tibiæ robust and densely pilose; tarsi slender, brown; tibial spurs of the middle and posterior legs very long and acute. Wings brown, with bluish-green reflections, darker towards the base; secondaries limped at their base. Length of the body 7 lines. Expanse of the wings 12 lines.

*Obs.* This remarkable species was captured by myself in Middletown, Frederick County, Virginia, and is now in the collection of the Entomological Society of Philadelphia. As its opaque secondaries, long spiral tongue &c., exclude it from the genus *Trochilium*, I have with some doubt, referred it to *Ægeria*, although I have not been able to find any species of *Ægeria* described as having such remarkable appendages as are possessed by this species.

Fig. 1.



\* Although the figure given is not perfectly symmetrical, it will serve to convey an idea of the appearance of this remarkable insect. The left wings are, however, correct.



**PAPILIO DAUNUS** Boisd. (Fig. 2, reduced.)

A male of this fine species, collected in Kansas near the Rocky Mountains, is now in the Collection of the Entomological Society, presented by Dr. T. B. Wilson.

This species is described by Boisduval in his *Spec. gén.* p. 342, from Mexico, and as I have never heard before of its occurrence north of the Rio Grande, it will not perhaps be uninteresting to point out here the differences that exist between it and *P. turnus*, with which it has a striking resemblance.

It differs from *turnus* as follows:—The body is half again as large, and the antennæ are two lines longer than of any male specimen of *turnus* that I have examined. The primaries are longer,



more curved and narrower at the apex and shaped more like *P. thoas*; the posterior margin of the secondaries is very deeply and acutely dentated, and has three unequal tails of the following dimensions: the outer one is 9 lines long, linear and curved inwards; the middle tail is 4 lines long, straight; the innermost tail is 2 lines long, broad and obtuse. The markings differ as follows: the black dorsal line of the thorax is narrower and does not widen posteriorly. There

is not so much black on the wings, the yellow of the upper side is deeper and the yellowish crenulations of the posterior margin are almost obsolete; the yellowish spots on the black marginal band are much larger, elongate and merely separated by the nervures, those nearest the apex being broader; inside of this row of yellowish spots the black band is surmounted with a distinct row of yellowish atoms; the four unequal black bands proceeding from the costal margin, are situated as in *turnus*, but the first or innermost one is narrow and tapers to the anal angle of the secondaries, the second and third bands do not extend beyond the median nervure, and the fourth is short and obsolete. The under side of the primaries is the same as the upper side, except that the color is much lighter, and the row of yellow spots on the posterior margin is broader and becomes a regular band. The upper side of the secondaries is marked as in *turnus*, except that the fulvous spot on the anterior angle is wanting in this species. The under side has no fulvous spots except on the last marginal lunule and the anal eye, the bluish atoms are very brilliant, and the row of yellowish atoms very distinct. Expands nearly five inches.

## STATED MEETING, DECEMBER 8.

Vice-President BLAND in the Chair.

Nineteen members present.

## REPORTS OF OFFICERS AND COMMITTEES.

The report of the Recording Secretary was read as follows:—

REPORT OF THE RECORDING SECRETARY  
FOR 1862.

Another year has passed away and we are again assembled to review the labors of the past. It is with feeling of pride and satisfaction that the Recording Secretary presents the following Report, and at the same time begs leave once more to congratulate the members on the continued advancement and prosperity of the Society.

Notwithstanding the troubled state of the Country, and the constant occurrence of events calculated to engross the entire attention of the community in general, yet time has been found and devoted to the subject of Entomology to such an extent as to warrant our saying that this branch of Natural Science has not heretofore received so great attention.

In regard to the Cabinet, the results of the past year are very gratifying. The following extracts made from the Reports of the Committees in charge of the various departments, will show the condition of the Cabinet to be prosperous:—

<i>Coleoptera</i>	now in the collection,	2979	species.	Increase,	429	species.
<i>Lepidoptera</i>	" " "	1404	"	"	885	"
<i>Neuroptera,</i>	} " " "	321	"	"	72	"
<i>Orthoptera,</i>						
<i>Hemiptera</i>						
<i>Hymenoptera</i>	" " "	217	"	"	81	"
<i>Diptera</i>	" " "	271	"	"	47	"

Making a total of 5,192 species, being an increase of 1,514 species during the past year.

The Library has also received considerable attention, as will be seen in the printed proceedings of the meetings of the Society. There is an increase of 344 volumes and pamphlets during the past year, making a total of 473 volumes and pamphlets now in the Library, including a number

of rare and valuable works, whereby the student of Entomology may have opportunities of research hitherto unattainable, except at considerable trouble and expense.

The Printed Proceedings of the Society are also on the progressive; material has not as yet been wanting, wherewith to enrich its pages, and what was commenced in doubt and fear, is now conducted in full confidence, that no effort will be spared in the continuance of so noble an effort.

During the past year there have been presented for publication, 22 papers, as follows:—

By Baron R. Osten Sacken, three, to wit: "Descriptions of some Larvæ of North American Coleoptera;" "Characters of the larvæ of Mycetophilidæ;" "Additions and corrections to the paper entitled 'On the Cynipidæ of the North American Oaks and their galls.'"

By Brackenridge Clemens, M. D., three to wit: "New American Micro-Lepidoptera," two papers; "Synopsis of Families of Heterocera."

By Edward Norton, three, to wit: "A notice of several new species of Tenthredinidæ;" "Description of several new Hymenoptera;" "On the Synonyms of *Cimbex Americana*."

By S. B. Buckley, two, to wit: "The Tarantula (*Mygale Hentzii* Gd.) and its destroyer (*Pompilus formosus* Say);" "Descriptions of two new species of Termites from Texas."

By W. H. Edwards, two, to wit: "Notes upon *Grapta comma* of Harris and *Grapta faunus*, Edwards." "Descriptions of certain species of Diurnal Lepidoptera found within the United States, figured in Doubleday's Genera, but undescribed."

By E. T. Cresson, two, to wit: "Catalogue of the described species of North American Hymenoptera." Two papers.

By George H. Horn, M. D., "Descriptions of some new North American Coleoptera."

By H. T. Fay: "On Winter Collecting."

By Aug. R. Grote: "Additions to the Catalogue of United States Lepidoptera."

By James H. B. Bland: "Descriptions of several supposed new species of Cerambycidæ in the collection of the Entomological Society of Philadelphia, with observations on some already described."

By James Ridings: "Description of a species of *Ægeridæ* from Virginia, supposed to be new, and some observations upon *Papilio Daunus*."

By J. A. Lintner: "Metamorphoses of *Ceratonia quadricornis*."

By B. D. Walsh: "On the genera of Aphidæ found in the U. States."

A number of written and verbal communications have, from time to time, been offered, some of which are quite interesting as well as important.

During the past year, ending November 30th, 1862, there have been elected 8 Resident and 21 Corresponding Members.

Seven Members have been added by virtue of the Charter of the Society.

The Society now numbers 65 Resident and 48 Corresponding Members.

The average attendance at the Monthly Meetings of the Society, has been about sixteen Members.

The Society is greatly indebted to our fellow-members Dr. Thomas B. Wilson and Col. Craig Biddle, who, by their zealous endeavours, succeeded in obtaining a Charter, whereby it is enabled to take its place among the Scientific Institutions of this City.

During the past year the Constitution and By-laws of the Society were entirely revised in conformity to the aforementioned Charter.

The Society has now at its command a commodious Hall, wherein the Meetings are held, and the printing of the Proceedings &c., is conducted. The operations of the Society are being constantly facilitated, and nothing remains but for the Members to come forward and contribute their mite of labor and knowledge to the cause in which we are engaged. Much material remains to be worked up, and it is hoped that the Committees in charge of the various departments will do all they can to study out the names of such material as they may have on hand, so that we may always have the specimens in our collection correctly named and classified.

As an aid to the Society, there has been a Collecting Fund established, for the purpose of sending out Collectors, and also to purchase such collections of Insects as may tend to enhance the value of the Society's Cabinet. Not only is the Society benefited by this fund, but the Members themselves will find it to their interests to subscribe to said fund, as it will enable them to enrich their own collections. The object is a good one and should be encouraged.

All of which is respectfully submitted by

J. FRANK KNIGHT,  
Recording Secretary.

*December 8th, 1862.*

The Annual Reports of the Corresponding Secretary, Treasurer, and the Standing Committees on Coleoptera, Lepidoptera, Hymenoptera, Diptera, Neuroptera &c., Library and Publication, were read.

The Committees on the papers of Messrs. Lintner and Walsh, read November 10th, reported in favor of their publication in the Proceedings of the Society.

#### DONATIONS TO CABINET.

The following (87 specimens of) LEPIDOPTERA were kindly determined for the Society by Mr. Aug. R. Grote of New York, and presented by the Committee on Collecting Fund:—*Halesidota tessellaris* Sm., *Crocota rubicundaria* Hüb., *Gnophria vittata* Harris, *Datana ministra* Drury, *Diphthera fallax* Herr. Sch., *Gonoptera libatrix* Linn., *Euplexia lucipara* Linn., *Cirrædia pampina* Guén., *Dypterigia pinastri* Linn., *Noctua bicarnea* Gn., *N. C-nigrum* Linn., *N. triangulum* Gn., *Agrotis suffusa*, *A. jaculifera* Guén., *Chersotis plecta* Linn., *Placodes cinereola* Guén., *Plusia ærea* Hüb., *Erastria carneola* Guén., *E. nigrifula* Guén., *Hadena amica*, *H. miseliodes* Guén., *Heliothis armigera* Linn., *Panopoda rubricosta* Guén., *P. carneicosta* Guén., *P. Cressonii* Grote (Type), *Xanthoptera nigro-fimbria* Guén., *Helia americanalis* Guén., and *Pyralis farinalis*; also a female specimen of *Hemerophila unitaria* Herr. Sch., presented by J. H. B. Bland.

24 LEPIDOPTERA (*Eudryas unio*, *E. grata*, *Glauconis pholus*, *Pygæra albifrons*, *Spilosoma acrea*, *Arctia Isabella*, *A. virginica*, *Callimorpha Lecontei*, *Lophocampa caryæ*, *L. tessellaris*, *Leucania unipuncta*, *Plusia balluca*, *P. festuæ*, *Hadena xylinoides*, *Nadata gibbosa*, *Ceramica exusta*, *Cucullia umbratica*, *Hypona erectalis*, *Pyralis farinalis*, *Amphydasis cognataria*, *Abrazas ribearia* ♀, *Cidaria diversilineata*), from J. A. Lintner of Schoharie, New York.

146 British LEPIDOPTERA (*Papilio machaon*, *P. podalirius*, *Colias edusa* ♂ ♀, *C. hyale*, *Pieris brassicæ* ♂ ♀, *P. rapæ* ♂ ♀, *P. sabellicæ* ♂ ♀, *P. napi* ♂ ♀, *P. daphnicæ* ♂, *Euchloe cardamines* ♂ ♀, *Leptosia candida*, *Parnassius Apollo* ♂ ♀, *Aporia cratzegi*, *Melitæa selenæ*, *M. euphrosyne*, *Argynnis paphia*, *A. aglaia*, *Vanessa polychloros*, *V. Calbum*, *V. urticæ*, *V. io*, *V. atalanta*, *Apatura iris*, *Limenitis sibilla*, *Arge galathea*, *Lasiommata ægeria*, *L. megera*, *Hipparchia semele*, *H. tithonus*, *H. janira*, *H. hyperanthus*, *Canonympha dorus*, *C. pamphilus*, *Oreina blandina*).

*Limenitis camilla*, *Coenonympha polydama*, *Thecla quercus*, *Thecla rubi*, *Chrysophanus phléas*, *Lycæna dispar* ♂ ♀, *Polyommatus albus*, *P. ægon*, *P. corydon*, *P. dorylas*, *Smerinthus ocellatus*, *S. populi*, *S. tilisæ*, *Sphinx convolvuli*, *S. ligustri*, *S. pinastri*, *Acherontia atropos*, *Deilephila euphorbiæ*, *Chærocampa elenor*, *C. porcellus*, *Macroglossa stellatarum*, *Sesia fuciformis*, *Ino statice*, *Anthrocera filipendulæ*, *Sphecia bembeciformis*, *Sphecia apiformis*, *Hepialus hectus*, *Hepialus velleda*, *Hepialus sylvinus*, *Hepialus humuli* ♂ ♀, *Cossus ligniperdi*, *Zeuzera æsculi*), from James Ridings.

2 COLEOPTERA (*Calosoma externum*, *Thanasimus dubius*), from Chas. F. Parker.

2 LEPIDOPTERA (*Eudryas unio*), from William Wenzel.

#### DONATIONS TO LIBRARY.

*Patent Office Report on Agriculture, for 1854 & 1861*: From Charles F. Parker. 2 Vols. 8vo.

*List of the Pseudoneuroptera of Illinois contained in the Cabinet of the writer, with descriptions of over forty new species, and notes on their structural affinities*. By Benj. D. Walsh, M. A. From the Author.

*Additions to the nomenclature of North American Lepidoptera, No. 2*. By Aug. R. Grote. From the Author.

*Prairie Farmer (Chicago, Ill.)*, Nos. 19 to 22 of Vol. 10. From the Editors.

The following works were deposited by Dr. T. B. Wilson :—

*Annales de la Société Entomologique de France*, Tome 8—11; 2 série, Tome 1—10; 3 série, Tome 1—7. 21 Vols. 8vo.

*Le Règne Animal, distribué d'après son organisation. Insectes*. Par Georges Cuvier. Texte et Atlas. 4 Vols. Royal 8vo.

*Nouvelle Méthode de Classer les Hyménoptères*. Par L. Jurine. 1 Vol. 8vo.

*Monographia Cassididarum*. Auctore C. H. Boheman. 4 Vols. 8vo.

*Hymenoptera Europæa, præcipue Borealia*. Ab. A. G. Dahlbom. 2 Vols. 8vo.

*Zoologischer Atlas*. Von Dr. F. Eschscholtz. 1 Vol. Folio.

*Systema Entomologicæ*. J. C. Fabricii. 1 Vol. 8vo.

*Systema Rhyngotorum.* J. C. Fabricii. 1 Vol. 8vo.

*Synonymia Insectorum.* Von C. J. Schonherr. 4 Vols. 8vo.

*Curculionidum dispositio Methodica.* Auctore C. J. Schonherr. 1 Vol. 8vo.

*Die Rhynchoten Livlands in systematischer Folge beschrieben.* Von Dr. Gustav Flor. 2 Vols. Royal 8vo.

*Bibliotheca Entomologica.* Von Dr. H. A. Hagen. Erster Band. A—M. 1 Vol. 8vo.

*Arcana Entomologica.* By J. O. Westwood. 2 Vols. 8vo.

*Naturalist's Repository or Miscellany of Exotic Natural History.* By E. Donovan. 5 Vols. 8vo.

#### WRITTEN COMMUNICATIONS.

Letters were read from

G. W. Beadle, dated St. Catharines, C. W., November 17th, 1862, acknowledging his election as a Corresponding Member of the Society:

J. A. Lintner, dated Schoharie, New York, acknowledging his election as a Corresponding Member, and transmitting donations to the Cabinet of the Society:

William Cooper, dated Quebec, Canada, November 14th & 25th, 1862, acknowledging his election as a Corresponding Member, and calling the attention of the Society to the utility of forming a Collection of Insect Architecture in connection with the Entomological Cabinet, and stating that the study of such is highly instructive and attractive, and that many very important discoveries are made from collecting and preserving material of that nature.

The following paper was presented for publication in the Proceedings: "Additions to the Catalogue of United States Lepidoptera, No. 2, by A. R. Grote."

And was referred to a Committee.

#### ELECTIONS.

On ballot, the Rev. W. P. Breed and Mr. Christian Kline were elected Resident Members, and Mr. Harvey J. Rich of Brooklyn, New York, and Dr. Beverley R. Morris of Toronto, Canada West, were elected Corresponding Members of the Society.

The Society then proceeded to elect Officers and Standing Committees for the ensuing year, with the following result:—

**OFFICERS.****PRESIDENT.**

James H. B. Bland.

**VICE-PRESIDENT.**

Charles F. Parker.

**CORRESPONDING SECRETARY.**

Ezra T. Cresson.

**RECORDING SECRETARY.**

J. Frank Knight.

**TREASURER.**

Charles Wilt.

**STANDING COMMITTEES.****COLEOPTERA.**

J. H. B. Bland, Samuel Lewis, M. D., Henry Feldman.

**LEPIDOPTERA.**

James Ridings, Charles A. Blake, William Wenzel.

**NEUROPTERA AND ORTHOPTERA.**

J. Frank Knight, Charles F. Parker, John Pearsall.

**HEMIPTERA AND APTERA.**

Charles F. Parker, John Pearsall, J. Frank Knight.

**HYMENOPTERA.**

Ezra T. Cresson, James Ridings, James W. McAllister.

**DIPTERA.**

T. B. Wilson, M. D., Charles Wilt, William Wenzel.

**LIBRARY.**

Charles A. Blake, Samuel Lewis, M. D., Charles F. Parker.

**PUBLICATION.**

T. B. Wilson, M. D., Ezra T. Cresson, John Meichel.

**COLLECTING FUND.**

Samuel Lewis, M. D., Charles Wilt, Ezra T. Cresson.



**Metamorphoses of CERATOMIA QUADRICORNIS, Harris.**

BY J. A. LINTNER.

On the 4th day of July, a female *Ceratonia quadricornis* was brought to me, which I inclosed in a box, in the hope of securing some of the eggs, with which the body appeared to be distended. During the three following days, it deposited one hundred and seventy eggs. A couple of days thereafter it was found dead; on opening the abdomen, not a single egg was remaining in it.

This is the only instance in which I have been successful in obtaining a deposition of eggs from a *Sphinx*, although frequently having had them to die, with their bodies filled with eggs apparently matured. Mr. Edwards, of Newburgh, N. Y., informs me, that he has this season succeeded in pairing *Smerinthus geminatus*, Say, from which he obtained eggs the following day, and in ten days, the larvæ.

The Egg of *C. quadricornis*, is of a uniform delicate pale green, smooth, round as seen from above when attached to the leaf, but slightly flattened on its upper and lower sides; greatest diameter .054 in.. The shell, after the escape of the larva, is thin, colorless and transparent.

The young larvæ made their appearance on the 11th and 12th. They were of a pale green color; measured .2 in.; caudal horn sparsely dotted and tipped with brown, straight, of about half the length of the body; the thoracic horns apparent; the dorsal serrations barely visible.

Their exit from the shell, is effected by eating an opening of sufficient size to permit their egress. Upon emerging, the first act of the larva, is to devour the remainder of the shell. Transferred to some tender leaves of the Elm (*Ulmus americana*)—its natural food—it crawls about for a time, as if seeking a suitable position for feeding, which in almost every instance, is on the nervure of the leaf, with its head towards the margin. If disturbed, it throws itself in the peculiar *Sphinx* attitude, when even but a few hours old. If another larva ventures to crawl over it, it lashes its body violently from side to side, or entwines about the intruder, both sometimes falling together, or hanging suspended by the thread, which they emit in their progress, at this stage of growth.

Two days before its molting, it ceases feeding, and assumes the following position (which it holds until the change): the terminal prolegs embracing one of the nervures, the body detached from the leaf, and its anterior portion strongly curved, until the head is brought almost underneath it. After the lapse of a few hours, by placing the larva between the eye

and the light, the first stage of the molting process can be seen. The front of the head shows a translucent linear space, indicating the separation of the head within, from its outer case. As this space increases, the first and second segments of the body show a corresponding enlargement, until the head has been wholly withdrawn from its case, and is covered by the skin of the anterior segments, now much extended from the greatly increased size of the head.\* The color of the larva becomes dull, from the absorption by the body, it is supposed, of the fatty matter which separated the new skin from the outer, leaving the latter comparatively dry, and in readiness to be cast off.

The actual molting commences, by a rupture of the skin at its junction with the head case, above. The muscular effort of the larva usually suffices to accomplish this, and to detach the case, but occasionally, it is obliged to resort to violent rubbing against the leaf. If the case should still remain connected by a small portion of the skin, the larva proceeds to extricate its legs, with which it seizes the case, and at once effects the separation; in no instance is it allowed to remain attached. These cases, thrown off as they are, by all the *Sphinx* larvæ, unbroken and often retaining the original colors, should be carefully preserved, whenever the opportunity offers, as interesting and valuable cabinet specimens. Through the opening thus made, the larva, by the alternate extension and contraction of its segments, emerges from its old covering, with a brighter and usually a different coloration, and materially increased size: the operation requires about five minutes for its accomplishment.†

The molting completed as above, the larva moves backwards a few steps, until it comes in contact with the skin still adhering firmly to the nerve, when it elevates the posterior portion of its body over it, and grasps it firmly with its terminal prolegs. In this position, it continues motionless for about two hours, when it turns deliberately about, and commences to feed upon its old skin, of which it usually leaves not a fragment re-

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\* It is only at the moltings, that the head, by its release from the confinement of the old case, is capable of enlargement, retaining the size which it then receives until the next change. Immediately after a molting, its diameter is greater than that of the body; before the next molting, less.

† The molting process, as given us, without qualification, by authors, viz.—the skin splits longitudinally along the back, and the caterpillar extricates itself from its old covering, by drawing out the body, leaving all the external visible organs, even the mandibles and palpi, attached to the old skin,—is true of some of the families of *Lepidoptera*, but never of the *Sphingidæ*, except in the final casting of the skin, upon assuming the pupa state.

maining. Having finished its anomolous repast of animal food, after a brief rest, it betakes itself to its accustomed diet. I regret that the experiment was not made, of depriving the larva of its egg-shell and skin, with a view of determining whether they are essential to its health.

Before the first molting, the larva measures from .4 to .45 in. in length; body cylindrical, with a whitish vascular line and lateral stripes, and faint sub-dorsal lines; the thoracic horns barely visible; head smooth and uni-colored.

The first molting was on the 16th and 17th. The head and caudal horn are now granulated; thoracic horns prominent; the dorsal serrations, lateral stripes and thoracic lines distinct; the sub-dorsal lines (which are soon to be effaced) still visible.

Up to this period, fifty of the larvæ had died, and a number had escaped from their confinement, probably sufficient to have brought the mortality to forty per cent of the entire brood. I suspected that so large a loss must have been owing to injuries sustained in their daily removal to fresh leaves, although a delicate camels-hair pencil was employed, and the utmost care used in the operation. I learn, however, from Mr. Edwards, that an equal mortality attended his brood of *S. geminatus*, which were not handled, but permitted to make their way unaided to fresh twigs placed beside them. This critical period safely passed, the few deaths which subsequently occurred, were clearly traceable to external injuries.

Previous to the second molting, the larva measures from .6 to .7 in.; color pale green, yellowish at the incisures; the dorsal serrations and lateral stripes yellowish-green; the thoracic and caudal horns pale yellow; the sub-dorsal lines have disappeared; the stigmata not visible, being of the color of the body.

The second molting commenced on the 22nd, on which day three larvæ molted, twelve on the 23rd, eight on the 24th, and the last on the 27th. (The brood was now reduced to about a third of its original number.) The dorsal serrations are now prominent, and the lateral stripes show granulations; caudal horn with brown granulations in front and rear; the stigmata appear, with a black central line.

When ready for its third molting, the larva measures from 1 inch to 1.2 in.; head with whitish lateral lines; caudal horn a deeper yellow than before; legs tipped with brown.

The third molting extended from the 28th of July to the 1st of Aug.. Larva light green, with serrations and lateral granulations whitish; the

caudal horn, which has heretofore been straight, is now curved, of a yellow-green color, granulated with brown anteriorly; anal plate yellow bordered; thoracic horns yellowish tipped.

Before the next molting, the larva has increased to 1.6 inch in length, with very little variation in color from that above noted. At this stage, when the head has been withdrawn from its case, its whitish lateral lines can be plainly seen through the skin of the first segment which covers it.

The fourth and last molting was on Aug. 3rd, and the six following days. The moltings, with but few exceptions, take place at night; thus, on the morning of the 3rd, twenty-three larvæ had undergone the change, since they were last observed on the evening of the 1st; none molted during the day of the 3rd, but the following morning thirteen were found in their new dress. A large proportion of the sphinges which I have reared, have also undergone their *imago* transformation during the night—an observation the more interesting from its not being in obedience to any general law governing the entire order of Lepidoptera,—for while from twenty pupæ of *Pygæra albifrons* Sm.Abb., which I had at one time in my possession, each one emerged during the night,—from fifty cocoons of *Saturnia Io* Fab., obtained by me from the eggs of one female, every one made its exit in the day time.

The above molting was attended with the following marked change of coloration: larva tan color, with serrations and granulations lighter or ochreous; head umber color, with granulations almost black, the lateral stripes light brown, and mandibles shining black; first segment of the body anteriorly and thoracic horns exteriorly with whitish granulations; stigmata black, bordered with white, and divided by a white line, appearing blue by contrast; caudal horn reddish-brown, and quite rough with lighter granulations, some of which are tipped with a short hair; anal plate and shields dark brown, with black granulations; legs tan color.

The *mature* larva measures from 2.75 to 3.25 inches. Its coloration was as follows: body reddish-brown; head brown with indistinct lateral stripes of lighter; collar, anal plate and shields, and exterior of prolegs brown granulated with black; tips of the thoracic horns with oblong white granulations; dorsal serrations tipped with whitish or pink.

The larva, as above described, was very unlike all the individuals of the species that I have captured, which have uniformly been of a whitish-green assuming a rose or violet shade when ready to enter the ground;\* of my

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\* My observations do not confirm the opinion of Dr. Clemens, that this change of color is a sexual characteristic.

brood of forty, which I carried through to pupation, only one (the last which matured, later by four days than any other) was of the ordinary green, but without the usual change of shade, before burying in the ground. This marked departure from the characteristic coloration, was doubtless the result of indoor development, for I have before observed similar differences in color in larvæ which I have reared, from those of the same species matured with their natural exposure,—the variation tending always to deeper shades,—the reverse of what would naturally be expected, reasoning from the known effect of sun-light and air upon the *vegetable* world.

In many of the Sphingidæ the larval coloration is subject to such variation, that it is of comparatively little value in the description of species. For instance, in *Sphinx quinquemaculata* Haw., we find all the intermediate varieties of color, from a grass-green to dark brown: *Sphinx cingulata* Fab., is said to present the same range of variation. The external larval structure, however, is constant, and therefore of primary importance.

In *C. quadricornis*, the head is large, semi-oval, flattened in front, granulated. Body with the abdominal segments cylindrical, thoracic segments tapering slightly; on the second and third segments each, two short, straight, tuberculated, fleshy horns; a dorsal row of fleshy serrations, commencing on the fourth segment, of one tooth to each of the eight wrinkles,\* in which the segments are divided; from the anterior horn, a short row of tubercles extends downwards to a faint subdorsal line, sometimes obsolete; a line of granulations connects the thoracic horns, and is continued indistinctly across the fourth segment; a similar substigmatal line crosses the second and third segments, and joins the first lateral stripe; a line of tubercles borders the collar anteriorly; seven lateral stripes of granulations extending over the whole of one segment, and two-eighths and six-eighths respectively of two others. Caudal horn of medium length, stout, curved and quite rough with acute granulations; anal plate and shields granulated.

On the 9th, four of the larvæ reached maturity, indicating the period by ceasing to eat, and remaining motionless in one position. The following day they descended from the branches and commenced crawling vigorously about the case in which they were confined, endeavoring to make their escape. At this stage, the larva cannot be induced to enter the ground, and even if covered by a body of earth, it forces its way to the

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\* This number is uniform in all the *Sphinx* larvæ which I have examined, and probably in all those which are wrinkled transversely.

surface. A day later, its color has become dull, it is more sluggish in its movements, and is no longer capable of clinging to even a rough surface with its feet, from which, before, it could with difficulty be detached. If a box of earth be now furnished it, it at once thrusts in its head, and in a brief space of time disappears beneath the surface, penetrating to the bottom of the box where it constructs the cell in which it undergoes its pupa and imago metamorphoses.

The Cell measures  $2\frac{1}{4}$  by  $1\frac{1}{4}$  inches, and is of an elongate oval form, flattened on the bottom of the box, with its broader end elevated at an angle of about fifteen degrees; from this end the imago always makes its escape. The cell is molded in general outline by the pressure of the body of the larva, and afterwards worked into its precise shape and compactness of wall by the stronger muscular force of the head. The entire inner surface of the cell is covered with little pits made by the anterior portion of the head, in which the impress of the mandibles is plainly seen.

By the time that the cell is completed, a contraction in the length of the larva, and a gradual approach in form to that of a pupa is apparent. Five days after entering the earth, the skin, which has become shrivelled and dry, separates at the dorsal line on the first segment, disclosing the pupa, and very soon thereafter the operation of removing the skin commences. By alternate extensions and contractions of the segments, the skin is seized between them and drawn backward, forcing the head of the pupa within the opening which enlarges by its extension across the second segment, and down the central suture of the head-case. The skin having been by this means loosened from the inclosed pupa, and partially withdrawn, its removal is completed by means of the spine, in which the abdomen of the pupa terminates, which is thrust into the skin at various points, and from the freedom of motion—both laterally and linearly—which the abdominal structure allows it, accomplishes the work with ease and rapidity. With this statement of the important part which the terminal spine performs in this metamorphosis, those who have previously looked upon the long, stout and bifurcated spine of the *Dryocampidæ*, simply as a curious appendage, may see in it an admirable provision for overcoming the apparent difficulty of the removal of the skin from a pupa roughened with granulations, thickly studded with teeth, and encircled on each ring with an armature of spines.

The Pupa, which is at first of an amber color, in the course of a few hours changes to brown, although entirely excluded from the light. In two or three days it becomes a very dark glossy brown, its wing cases tin-

ged with red. It is 2 inches long by .6 in. broad; cylindrico-conical; thoracic diameter nearly equal to abdominal; slightly compressed laterally, behind the base of the wing cases; terminal segment not blunt, but tapering to the spine; head case not projecting, extending very little beyond the base of the antennæ cases which are full, rounded, showing distinctly the joints; tongue case buried; thoracic stigmata broadly open, semi-oval; abdominal rings punctulated and wrinkled, except on their posterior third; terminal spine short, stout, rough, rather blunt.

The above metamorphoses, through which, in the space of forty-two days, the egg passes into the pupa, are naturally divisible into the seven following periods: from the deposition of the egg to the development of the larva—from the larva to its first molting—the three intervals between the moltings—from the last molting to maturity—and from maturity to the pupa. These periods show an interesting uniformity in length,—five of the seven consisting of six days each; had fractions of days been noted in the observations, it is probable that the variation of one day each, shown by the remaining two, would have been diminished.

The Imago, after having passed the winter in its pupa state, makes its appearance usually in the month of June. I regret that I am unable to give this period with greater precision, but having had the larva to enter the ground for pupation as early as Aug. 3rd, and as late as Sept. 17th—a range of seven weeks,—a corresponding difference in the time of the appearance of the imago, is presumable. Occasionally its transformation is delayed until the following spring. Of several pupæ obtained in the fall of 1861, two, at the present time, are still in the pupa state, to all appearances in good condition, while others of the number, subjected to the same treatment and exposure, made their escape at the usual time. This protracted pupation has been previously observed in some of the Sphingidæ. It has come under my personal observation only in the species under consideration, in *Sphinx drupiferarum* Sm. Abb., and *Sphinx quinquemaculata* Harris.

While the larva of *C. quadricornis* is not rare in this locality—each year furnishing me with individuals—I have captured the imago but once during several years of collecting. Should the larva be so fortunate as to avoid discovery by the keen eye of a bird, during the earlier stages of its growth, its large size as it approaches maturity, and color differing materially from that of the leaf on which it feeds, allow it rarely to escape the eager search of its natural parasite. Once discovered, its little enemy

quickly introduces within its body a number of eggs, while against the fatal attack, the poor victim has no adequate means of defense. Occasionally the death of the larva follows, before its transformation, but usually it buries in the ground with sufficient vitality remaining to carry it through its change. I have not obtained the parasite, but when the imago has failed to appear in due time, an examination of my boxes has given me the pupa case filled with the undeveloped parasitic pupæ, resembling those of the order of *Diptera*; the fact, however, of the eggs being deposited within the body of the larva, instead of upon it, determines them to be of the *Hymenoptera*.

The very accurate description of the imago by Dr. Clemens in his Synopsis of the Sphingidæ, needs nothing additional, beyond a few sexual characteristics. The specimens before him were doubtless females. The males in my collection present the following features: the discal spot is fawn color, small; the subterminal lines and those crossing the basal portion of the anterior wings are much less distinctly marked than in the opposite sex; the posterior wings have the subterminal band narrower and better defined, and two lunated bands crossing their middle.

From the small number of individuals in my possession, I am unable to give the variation which this species offers. The variation presented within the limit of a single brood—always interesting, but particularly so in the attractive family of Sphingidæ—I shall be able to report hereafter, if successful in obtaining the perfect insect from a fair proportion of my pupæ. It will also afford a rare opportunity of noting to what extent, if any, a marked departure in the larva, from its normal coloration, is reproducible in the imago.



On the genera of *APHIDÆ* found in the United States.

BY BENJ. D. WALSH, M. A.

The chief object of the following paper is to direct attention to the various generic forms of the *APHIS* family, which I know to occur within the limits of the United States either from observation or from books. I do not possess Koch's great work on this family, and unlike our more fortunate Eastern brethren, we Western naturalists have no Public Scientific Libraries to aid us in our investigations. In order therefore that no mistake may arise as to the generic limitation of species, and also for the sake of brevity, I have compiled, partly from such resources as are at my disposal and partly from my own investigations, the following Synoptical Table of U. S. Genera. Some of the old genera which are retained are ignored by Koch, as I have been kindly informed by A. Agassiz, Jr. Esq., who has obligingly forwarded to me such extracts from Koch's book as I asked of him; one genus (*Thelaxes*) has not hitherto been discovered in the United States, and another (*Culaphis*) is, so far as I am aware, entirely new. Subjoined will be found references to all the described U. S. species known to me, and brief descriptions of such as appear to be new, always from the dried specimens except it is otherwise stated, the food-plants being given whenever they are known. All the new species occurred near Rock Island, Illinois. Imperfect as they are, such descriptions may perhaps serve some useful purpose.

Linnæus long ago remarked on the difficulty of distinguishing the various species of *Aphidæ*. If we suppose, as some authors have done, that similar species of *Aphidæ* inhabiting distinct species of the same botanical family are therefore necessarily distinct, the number of Aphidian species will be enormously large. For example, a large and conspicuously marked red species described by Dr. Fitch as *Aphis rudbeckiæ* occurs, according to Dr. Fitch, on *Rudbeckia laciniata*, *Solidago serotina* and *S. gigantea*; and a species differing only in some minute details of coloring, and which I have little doubt is identical, occurs, as I have myself observed, on *Silphium perfoliatum* and an undetermined species of *Cirsium*—all five of the above plants belonging to the great Natural family *Compositæ*. Here, if difference of food-plant makes difference of species, we get from three to five species of *Aphis* in the place of one. But I am myself acquainted with many species, found on plants of distinct natural families, which are either entirely undistinguishable when the living insects are placed side

by side, or differ only by very slight characters, which would not be generally considered sufficient to separate two insects specifically. A case of this kind is noticed below under *Lachnus Curyæ*—a gigantic aphidian hitherto found only on the Hickory, but which I have found on the Hickory, the Bass-wood, and the Oak. Perhaps, however, a more careful study of these species in all their three states, might disclose distinctions, which, if constant, might be of specific value. If, on the other hand, experiment should prove, that a colony of one supposed species could be transferred without injury to their health and procreative powers to a plant of another family inhabited by another supposed species which closely resembled it, the proof of their specific identity would be nearly complete. The whole subject is obscure and requires further investigation.

If we recur to the analogy of other families of Insects which have nearly the same habits as *Aphidæ*—for example *Tingidæ* among the *Heteroptera*—the difficulty is not lessened. As a general rule, so far as my own observation extends, each species of *Tingis* is confined to some particular plant. For instance, *T. ciliata* Say occurs only on the sycamore or buttonwood (*platanus occidentalis*), where I have noticed it in profusion on the under side of the leaves along with its larva both in North and South Illinois. But on the other hand, *T. juglandis* Fitch, which that author states to breed on the butternut and to be “sometimes met with on birch, on willows, and other trees,” is undistinguishable, so far as the brief description of the imago goes, from a species which I found in profusion in South Illinois on what I took to be an ash. Again, a third species, which so far as I know is undescribed, occurs on the bass, the wild cherry, and the false indigo (*amorpha fruticosa*), or at all events the imagos found in great abundance on these three plants belonging to three distinct families, are undistinguishable when placed side by side. Perhaps part of the difficulty may arise from authors supposing that, because they found a species on a particular plant unaccompanied by its larva, it must necessarily have bred on that plant.

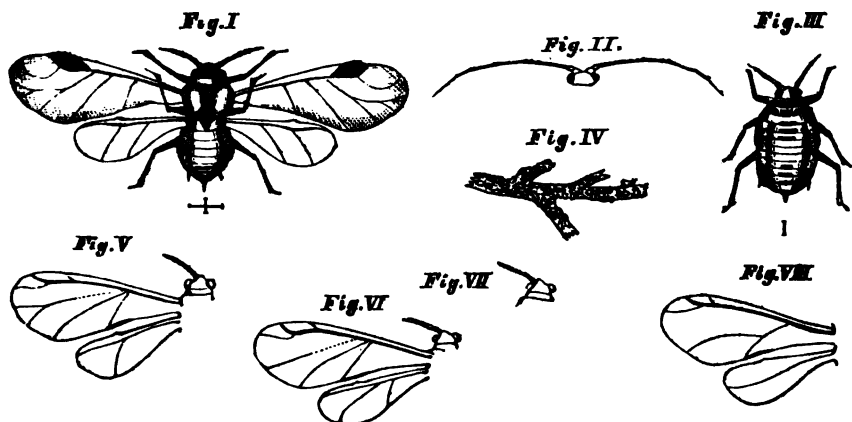
But even if a species of *Aphis* found in company with its larva on one plant differs obviously from another *Aphis* found in company with its larva on another plant belonging to a different botanical family, it does not necessarily follow, according to the general views of entomologists, that the two are specifically distinct. There is a remarkable example in *Lepidoptera* of a very considerable variation, correlated with variation in the food-plant, in an insect feeding on plants of distinct botanical families, not be-

ing considered of specific value. The larva of *Datana*\* *ministra*, Drury, is described both by Harris and by Fitch as being always vittate with yellow, and having the superior surface of the first segment yellow. All those that I have myself noticed on the oak, the apple, the wild-thorn, and some other trees were so marked; and so conspicuous is the yellow patch on the first thoracic segment, that Dr. Fitch has appropriately called this larva "the yellow-necked worm." In the year 1861 I found numerous mature specimens of this larva on the hickory, all of which varied from the normal type in being entirely black, with no vestige whatever of any yellow markings. One of these I preserved in alcohol, and from some of the others I obtained in 1862 2 ♂ 2 ♀ imagoes, which differ only from Dr. Fitch's elaborate description of the imago (2nd N. Y. Report, p. 239), and from the colored figure in the new Edition of Harris's Injurious Insects, in being slightly smaller in expanse, (1.45—2.00 inch instead of 1.75—2.50 inch, Harris, and 2.00—2.40 inch, Fitch,) and in the fringe of the front wings not being "edged with whitish on the apex." All the larvæ that I noticed in 1862 on the hickory were similarly devoid of the yellow marking; and Abbott in his *Insects of Georgia*, (p. 161 quoted in the first edition of Harris's Inj. Ins. p. 313,) says that these larvæ "besides the leaves of a species of *Andromeda* also eat the leaves of several kinds of walnut and oak; and that those which eat walnut leaves are always black with white hairs, and when their food is of the oak that they are more yellow; but that he had not observed any material difference in the moths." For what reason I do not know, this quotation from Abbott is entirely omitted in the recent edition of Harris's Book, (A. D. 1862) and probably also from the edition of 1852 edited by Harris himself, of which the edition of 1862 is professedly a reprint with additions from the author's MSS.

In a family like *Aphidæ*, where specific distinctions rest upon so uncertain a basis, and are very generally evanescent in the dried specimen, it must be obvious that it is pre-eminently important to carefully search for available generic characters. My own investigations lead me to believe, that generic characters are here correlated with important variations in habits; and that species of the same genus do not sometimes live on the external surface of plants, and sometimes in closed galls or foliicles.

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\* This insect is referred to *Phalæna* by Drury, to *Pygæra* by Harris, to *Petasia* (doubtfully) by Westwood, to *Datana* by Walker, and made the type of a new genus, *Eumetopona*, by Fitch, (N. Y. Reports, I, p. 241). *Eumetopona* should be *Eumetopa*, otherwise it means not "handsome-faced", as its author intended, but "handsome-faced ass".



[NOTE. The above wood-cut was kindly loaned by the Secretary of the Illinois State Agricultural Society.]

#### SYNOPTICAL TABLE OF THE U. S. GENERA.

Honey-tubes present. (Antennæ 7-jointed; front wings with 3 discoidals, the third two-branched; hind wings with 2 discoi- dals.)	Honey-tubes long. (Antennæ with joint 7 longer than 6.)	Stigmal vein present.	<b>Aphis.</b> (figs. 1 and 2) Foliage and roots.
	Honey tubes short, subobsolete. (Anten- næ with joint 7 shorter than 6.)	Stigmal vein absent.	<b>Calaphis,</b> n. g. Foliage.
Honey tubes obsolete. (Antennæ short, with not over six distinct joints, 7 being obso- lete or represented by a very small un- guiculus attached to 6.)	Front wings with 3 discoidals, the third 1-branched. (Antennæ 6-joint- ed, 6 longer than 5.)	Discoidals of the front wings of equal thick- ness. (Wings hori- zontally folded.)	<b>Callipterus.</b> Foliage.
		Front wings with the two first discoidals more robust. (Wings steeply roofed.)	<b>Lachnus.</b> Twigs.
	Front wings with 3 simple discoidals. (Hind wings with 2 discoidals.)	Hind wings with two discoidals. (Wings roofed.)	<b>Eriosoma?</b> Twigs, limbs and roots.
		Hind wings with one discoidal. (Wings horizontal.)	<b>Thelaxos.</b> (fig. 5) Galls.
	Front wings with two simple discoidals. (Hind wings with one discoidal; anten- næ 4 or 5 jointed?)	Antennæ 6-jointed, 6 nearly as long as 4 and 5 together.	<b>Byrsocrypta.</b> (fig. 7) Galls.
		Antennæ 6-jointed, 4 -6 subequal, 5 a little the longest,	<b>Pemphigus.</b> (fig. 6) Roots.
Front wings with one one-branched dis- coidal. (Hind wings with no discoidal; antennæ 4 or 5 jointed?)	Front wings with one one-branched dis- coidal. (Hind wings with no discoidal; antennæ 4 or 5 jointed?)		<b>Chermes.</b> Foliage.
			<b>Phylloxera.</b> (fig. 8) Galls.

## APHIS Linn. (Figs. I, &amp; II.)

*Aphis avenæ* Fabr. (Wheat, rye, oats and barley.) Rural New Yorker, Aug. 17, 1861 and July 12, 1862, with figures and description from Curtis. Cyrus Thomas of South Illinois, in Illinois Prairie Farmer, Jan. 18, 1862. Dr. Fitch's Address to N. Y. Agricultural Society, 1862, reprinted in Prairie Farmer, Nov. 8, 1862.—*A. mali* Fabr. (apple) Fitch, N. Y. Reports Inj. Insects, Vol. I. p. 54.—*A. malifoliæ* Fitch, (apple) ibid. p. 56.—*A. prunifoliæ* Fitch, (plum) ibid. p. 123.—*A. cerasi* Fabr. (cherry) ibid. p. 125.—*A. cerasifoliæ* Fitch, (choke-cherry) ibid. p. 131.—*A. cerasicolens* Fitch, (wild cherry) N. Y. Catal. Homopt. p. 65.—*A. maidis* Fitch, (maize) N. Y. Reports, I, p. 318.—*A. persicæ* Sulzer (peach) ibid. II, § 63.—*A. ribis* Linn. (currant) ibid. § 145.—*A. berberidis* Fitch, (berberry) N. Y. Cat. Hom. p. 65, winged insect unknown.—*A. brassicæ* Linn. (cabbage) ibid.—*A. asclepiadis* Fitch, (silk-weed) ibid.—*A. cornifoliæ* Fitch, (*Cornus paniculata*) ibid., winged insect unknown.—*A. cratægifoliæ* Fitch, (*Cratægus punctata*) ibid. p. 66.—*A. betulæcolens* Fitch, (birch) ibid.—*A. aceris* Linn. (*Acer pensylvanicum*) ibid.—*A. sambucifoliæ* Fitch, (elder) ibid.—*A. pinicolens* Fitch, (pine) ibid.—*A. populi-foliæ* Fitch, (*Populus grandidentata*) ibid.—*A. rudbeckiæ* Fitch, (*Rudbeckia laciniata* and *Solidago serotina* and *S. gigantea*) ibid.—*A. rosæ* Auct? (rose-bushes) Harris, Inj. Ins. p. 190.—*A. salicis* Harris, (willow) ibid. p. 191.—23 species.

*Aphis quercifoliæ* n. sp.—Oak-leaves. Larva pale greenish. Incisures of the antennæ dusky. Upper surface of body, except the scutel, dusky. Honey-tubes long, robust, dusky at tip. Legs long, with the terminal  $\frac{1}{2}$  of femora, the extreme tips of the tibiæ, and the tarsi, obfuscated. Imago, blackish; prothorax and anterior part of thorax sometimes varied with greenish; scutellum pale greenish. Honey-tubes two-thirds as long as the femora. Legs very long; basal  $\frac{1}{2}$  of femora pale greenish. Wings hyaline; veins brown, third discoidal vein hyaline at its origin; stigma and subcostal veins pale yellowish-brown; extreme tip of the front wings slightly fumose. Length to tip of wings scarcely .2 inch.

One larva, two imagos, one of which was taken in company with the larva. The antennæ attain the extreme tips of the wings when the wings are expanded, and the stigma is four times as long as wide, and very acute at each end.

*Aphis rudbeckiæ*? Fitch.—*Silphium perfoliatum* and *Cirsium*——? From recent specimens. Red, fading to reddish-fuscous. Antennæ black, linear, joints rather indistinct, base of joint 3 more or less yellowish. Honey-tubes black, two-thirds as long as femora; anal style yellowish, more than half as long as honey-tubes, ensiform. Legs long, black, the basal half of femora yellowish-hyaline. Wings hyaline, costa very pale yellowish-brown, stigma pale fuscous-brown; veins brown, costals pale yellowish-brown. Length to tip of wings ♂ .20 ♀ .21 inch.

Seven specimens. The antennæ attain the tip of the stigma, and the stigma is four times as long as wide, and very acute at both extremities. Differs from Dr. Fitch's brief description in the antennæ not being entirely "black", in the honey-tubes being black, which are not specially referred to by Fitch, but should be "red" as he makes the ground-color "red", and in the stigma being pale fuscous-brown not "yellowish". The first of these differences generally becomes evanescent in the dried specimen; the second is probably a mere oversight. Dr. Fitch's insect occurred, as before stated, on *Rudbeckia laciniata*, *Solidago serotina* and *S. gigantea*.

*Aphis bella* n. sp.—Oak-leaves? Bright yellow. Eyes black; antennæ with the tip of joints 3—6 black. Prothorax as long as the head, with a lateral black vitta; thorax with a black vitta extending from its anterior angle to the base of the front wing. Honey-tubes scarcely as long as the tarsi, generally immaculate, sometimes tinged with fuscous. Legs long, black except the base of the femora and the coxæ. Wings hyaline; front wings with the entire costa as well as its nervures black to the tip of the stigma, whence there extends a marginal dusky vitta, as wide as the costa at base and middle but tapering at tip, nearly as far as the middle branch of the third discoidal vein; this vitta covers the entire length of the 4th or stigmal vein, which terminates half way between the tip of the stigma and the apex of the wing, is slightly and gradually curved, and encloses a marginal cell not wider than the costa; hind wings with a costal dusky vitta extending to the tip of the wing, the subcostal vein sometimes black; remaining veins of both wings slender and pale-dusky, narrowly bordered with subhyaline where they traverse the terminal dusky vitta of the front wing. Length to tip of wings .15 inch.

The antennæ attain the middle of the stigma when the wings are expanded, and the stigma is rather more than three times as long as wide, not very acute at each end. Three specimens beaten off oaks on two separate occasions. The marginal cell is one-half smaller than in any other species known to me. A yellow larva, with an irregular oval black spot enclosing a central yellow space on the abdomen, occurs rather abundantly on the oak, and probably belongs to this species; but I could never find any winged individual in company with it, and failed in an attempt to breed them.

*Aphis vitis*? Scopoli. n. U. S. sp.—Tame grape-vines. Blackish. Antennæ moderate, linear. Honey-tubes  $2\frac{1}{2}$ —3 times as long as the tarsi. Legs moderate, pale greenish; knees, tips of tibiae, and tarsi dusky. Wings hyaline, veins brown, the 3rd discoidal hyaline at its extreme origin; stigma dark dusky-brown. Length to tip of wings .11—.12 inch.

Sixteen specimens, found in company with many larvæ. The antennæ attain the middle of the stigma when the wings are expanded, and the stigma is three times as long as wide, not hunched externally, and moderately acute at each end. Not unlike *Aphis mali* when dried, but readily

distinguishable by its conspicuously dark stigma. I have received in bad condition from St. Louis specimens of what is probably the same insect attached to young vine leaves, and I have also noticed Aphides on tame vines in Central Illinois. Dr. Fitch states that in the Patent Office Report for 1854 (p. 79) "a plant-louse is reported as very destructive to the leaves and young shoots of the grape at the South, but as no description is given of it, we are unable to judge whether it possesses any resemblance to the foreign species." (N. Y. Rep. II, §116.)

*Aphis carduella* n. sp.—Tips of young thistle-shoots. Blackish. Antennæ with joint 6 short, somewhat obtriginate, joint 7 as long as 5 and 6 put together. Honey-tubes as long as the tarsi. Legs rather short, pale greenish; knees, tips of tibiæ, and tarsi dusky. Wings hyaline, with the tips of the front wings slightly fumose; veins brown, yellowish on the costa; the 3rd discoidal hyaline at its origin; stigma pale dusky-brown. Length to tip of wings .09—.10 inch.

Two specimens on *Cirsium altissimum*, ten on an undetermined species of *Cirsium* in company with larvæ. The antennæ attain the origin of the 2nd discoidal vein when the wings are expanded, and the stigma is rather more than twice as long as wide and hunched on the exterior margin.

*Aphis maidis*? Fitch. (Wingless ♀ fig. 3, winged ♀ fig. 1.)

Roots of maize; fig. 4 showing a portion of an infested root. Described from recent specimens. The larva differs from Dr. Fitch's description in being always of a pale-greenish or watery-whitish color, never changing to "a pale obscure red color." The pupæ, from which I succeeded in breeding fifteen winged ♀ ♀, were pale green, except the tips of the rostrum, of the antennæ, and of the tibiæ, and the eyes, tarsi and honey-tubes, which are all dusky, and the anal style, the knees, and the wings, which are clouded with dusky; whereas Dr. Fitch's pupæ had the head dusky, and the wings dusky only at their tips. The honey-tubes were about the same length as the tarsi, and the anal style one-half that. Behind the thoracic segments, both laterally and dorsally, there was a considerable constriction. The wingless females were pale green, and had the head, the first thoracic segment except its anterior edge, and the second except its anterior edge and a diverging line on each side, dusky. At the dorsal tip of the third thoracic segment and of the abdominal segments 1, 2, and 6—9 was a transverse dusky line. Laterally on abdominal joints 2—4 was a medial dusky dot, and on joint 6 before the honey-tube a terminal dusky line. Dr. Fitch's wingless females were "dull blackish, faintly tinged with green;" the markings differed considerably, and were "smooth and black," not as in my specimens opaque-dusky.

My winged females differed from Dr. Fitch's description only in the shanks being dusky, not "whitish except at their tips." In one or two immature specimens, however, the whole leg was whitish. The four first abdominal joints were larger and subequal, the rest small. A solitary specimen has the stigmal vein of one wing distinctly bifurcate at tip, as in a specimen of *Pemphigus pyri* mentioned by Dr. Fitch. The wings are slightly fumose at tip, and the stigma hunched externally and pale dusky-brown.

Length to tip of wings .10 inch. Dr. Fitch's insect occurred only on the stems of roasting ears. Probably the normal location of this species is the root, and towards autumn, when the roots become dry and sapless, it betakes itself, to avoid starvation, to the stem of the ear. The differences in color may arise from one insect living underground and the other in the open air, and the differences in the markings from specimens having been observed in different states of maturity.\* The antennæ in the living insect were half the length of the body, and in the dried specimens attain the origin of the first discoidal vein when the wings are expanded; joints 5 and 6 are obtrigonal, and joint 7 is equal to 5 and 6 put together. The stigma is scarcely more than twice as long as wide. This ♀ insect when dried resembles ♀ *A. cratægifoliæ* Fitch, of which I have found ♂ ♀ in company with the larva on wild thorn in October, but is distinguishable by the comparative shortness of its wings, its shorter stigma, and its somewhat shorter antennæ.

#### CALAPHIS n. g.

Antennæ long, linear, 7-jointed; 4 shorter than 3, 5 shorter than 4, 6 less than one-half as long as 5, 7 slender, twice as long as 6. Prothorax more than one-half as long as thorax. Honey-tubes moderate. Wings steeply roofed and differing from those of *Aphis* only in the total absence of the 4th or stigmal vein, and in the unusually robust discoidal veins.

*Calaphis betulella* n. sp.—Yellow. Antennæ attaining the extreme tips of the expanded wings, black, joints 1 and 2 yellowish with a black vitta half inside and half beneath; joints 3—6 each white at base; eyes black, with a black line from each to the insertion of the rostrum, which is black; head with a narrow black vitta above, acute in front, commencing between the antennæ and attaining the

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\* Dr. Fitch has recorded the very curious fact, that *Aphis avcnæ* is green when it breeds on the leaves, and yellow or reddish-yellow when it is propagated on the ear, the females when they first shift their quarters producing at first green and afterwards yellow larvæ.



prothorax. Prothorax and thorax with a narrow lateral vitta commencing at the eyes, passing just inside the base of the wings, and converging on the scutel, and another dorsal one, black. Abdomen with about seven dorsal black fasciæ at the tips of the joints, the basal and several of the terminal ones often interrupted or obsolete, occasionally only three present. Honey-tubes fuscous, scarcely as long as the tarsi. Legs yellow, femora with an anterior black vitta, abbreviated at tip, and a terminal and subterminal black fascia above; tibiæ and tarsi black. Wings hyaline, stigma generally yellowish; subcostal and three discoidals coal-black, very robust, subequal, except at the origin of the third discoidal where the subcostal is fine and paler, and the third discoidal hyaline for a short space; costal vein black, less robust, tapering to the base of the stigma, whence it becomes subobsolete. Hind wings with all the veins slender, subhyaline. Length .07—.09 inch; to tip of wings .15—.17 inch, expanse .30—.35 inch.

The stigma is three times as long as wide, moderately acute at each end. Differs from *Aphis betulæcolens* Fitch not only generically, but in the two costal veins being black, not "sulphur-yellow", and from all aphidians known to me in the costals and 3 discoidals being subequal in robustness. In one wing of one specimen the 2nd discoidal has a short branch on its basal side. Described from 25 recent specimens. Occurred abundantly, in company with its larva, on the leaves of a species of birch (*Betula nigra*) in August. The dried larva resembles the imago, except that the markings of the body are more or less obsolete, and is not gregarious.

### CALLIPTERUS Koch.

*Callipterus caryellus* Fitch, (hickory) N. Y. Rep. I, p. 165 and II, §167.—*C. punctatellus* Fitch, (hickory) *ibid.*, and II, §168.—*C. maculellus* Fitch, (hickory) *ibid.* I, p. 166 and II, §169.—*C. fumipennellus* Fitch, (hickory) *ibid.*, and II, §170.—*C. marginellus* Fitch, (hickory) *ibid.*, and II, §171.—*C. mucidus* Fitch, (apple) *ibid.* II, §20.—*C. castaneæ* Fitch, (chestnut) *ibid.* II, §199.——7 species.

### LACHNUS Illiger.

*Lachnus caryæ* Harris, (pig-nut hickory) Inj. Ins. p. 190 and Fitch, N. Y. Rep. II, §162.—*L. strobil* Fitch, (pine) N. Y. Rep. §256 (=eriosoma strobil, N. Y. Cat. Homopt. p. 69.).—*L. luricifex* Fitch, (larch) N. Y. Rep. II, §288.—*L. abietis* Fitch, (*Abies nigra*) N. Y. Cat. Hom. p. 67, winged insect unknown.—*L. quercifoliæ* Fitch, (white oak) *ibid.*—*L. salicellus* [ita] Fitch, (willow) *ibid.*—*L. alnifoliæ* Fitch, (alder) *ibid.*—*L. ulmi* Linn. (elm) *ibid.*—*L. populi* Linn. (*Populus grandidentata*) *ibid.*——9 species.

*Lochnus caryæ*, Harris.

I possess a ♂ (?) specimen of this fine, large species taken some years since on the pig-nut hickory, and I have this autumn noticed numerous apterous ♀ ♀ on the same tree, which lived many days and laid their eggs in confinement, but died without assuming wings. The abdomen of all of them, when alive, was as Harris describes it, cinereous with four rows of transverse black spots; in the dried specimen these generally disappear, the whole abdomen becoming an obscure fuscous, and they are not noticed in Dr. Fitch's description. The eggs are .06—.08 long, nearly thrice as long as wide, cylindrical, rounded at the end, and of a shining mahogany color.

I have also this autumn noticed numerous apterous ♀ ♀, apparently of the same species, both on the oak and on the bass-wood; and from the oak I have obtained two winged ♂ ♂, and from the bass-wood four, all in company with apterous ♀ ♀. Singularly enough, the only specimen that varies from the description is the one found on the hickory, which has black not reddish-brown femora, except the anterior femur which is reddish-brown at base. Harris says that this species has no terminal stylet. The ♂ of course has none, but the apterous ♀ has a short one, which is sometimes visible even in the dried specimen. I suspect that the ♀ is normally apterous, as the specimens that I kept confined lived till after Oct. 9th.

ERIOSOMA Leach, = *Myzoxylus* Blot, = *Schizoneura* Hartig.

*Eriosoma lanigera* Hausmann (apple) Harris, Inj. Ins. p. 193, Fitch, N. Y. Rep. II, § 17 and N. Y. Cat. Hom. p. 67.—*E. caryæ* Fitch, (hickory) N. Y. Rep. II, § 161.—*E. querci* Fitch, (oak) *ibid.* § 306.—*E. tessellata* Fitch, (alnus rubra) N. Y. Cat. Hom. p. 68.—*E. imbricator* Fitch, (beech) *ibid.*——5 species.

There is considerable confusion in authors as to the characters of this genus. Harris, quoting from Hausmann and Knapp, says that the adult *Eriosoma lanigera*, (apple-tree woolly-blight,) the type of the genus, never acquires wings; (Inj. Ins. p. 194.) Westwood, in his Synopsis and in his Introduction, assigns to it wings. Again, Westwood in his Synopsis says "fore wings with SIMPLE oblique discoidal nerves," whereas Fitch says that "*Schizoneura*" Hartig, or in English "FORKED-VEIN," is synonymous with *Eriosoma*, (N. Y. Rep. I, p. 7, note,) and in his description of *E. querci* he speaks of the FORK of the third discoidal. Mr. A. Agassiz in-

forms me that Koch ignores the genus entirely. In this state of uncertainty, I can only *guess* and *believe* that Westwood was in error in stating that the 3rd discoidal of *Eriosoma* is SIMPLE, not FORKED. But as *guessing* is not *knowing*, and *faith* is not *science*, and as I suspect, from the circumstances under which the following species were found, that they do not properly pertain to *Eriosoma*, I subjoin their leading generic characters.

Honey-tubes none; front wings with 3 discoidal veins, the first distant at its origin from the second about one-half the length of the tarsus, the third one-branched; hind wings with two simple discoidal veins. Antennæ short, 6-jointed, joint 3 as long as 4—6 put together, 4 and 5 somewhat obtrigonal, 6 lanceolate, nearly as long as 4 and 5 put together.

***Eriosoma? fungicola* n. sp.** From recent specimens. Body black, with a plum-like bloom; basal half of abdomen and the whole of venter yellow. Antennæ and legs black. Wings hyaline with a dusky tinge; veins dusky, black on the basal half of the costa; third discoidal hyaline nearly to its fork; stigma palish brown. Numerous individuals, unaccompanied by larvæ, occurred on a large, moist fungus a hundred yards from the nearest trees which were all oaks. Beat solitary individuals unaccompanied by larvæ or woolly matter, on two separate occasions from oaks, which when dried differ only from the dried specimen of those found on fungus by the metathorax being varied with pale greenish, as well as the base of the abdomen. Length to tip of wings .12—.13 inch.

The antennæ do not quite attain the base of the first discoidal when the wings are expanded, and the stigma is rather more than twice as long as wide. Six specimens in all. *E. querci* Fitch is larger (.16 inch) and is entirely black. Differs also from the other described U. S. species.

***Eriosoma? cornicola* n. sp.**

Differs from the preceding only in the body being entirely black. Numerous individuals, unaccompanied by any flocculent matter and so far as I recollect by larvæ, occurred in September on the lower side of the leaves of the red osier dogwood. Ten specimens.

#### THELAXES Westwood. (Fig. 5.)

To this genus, which only differs from that to which the above two species appertain in the wings being carried flat in repose, as in *Cullipterus* and *Phylloxera*, and in the hind wings having but one discoidal, belongs *Byrsocrypta ulmicola* Fitch. (elm) N. Y. Rep. II. § 257. Dr. Fitch had not seen the winged insect, of which I have obtained many specimens. No other N. A. species of this genus has hitherto been met with.

*Thelaxes ulmicola* Fitch. New imago.—Black, more or less pruinose. Legs with the base of the femora and of the tibiae sometimes pale. Wings hyaline; costa to the base of the stigma very pale fuscous, the stigma a little darker; veins fuscous, the 3rd discoidal hyaline half-way from its base to the fork; hind wings with the veins subhyaline. Length to tip of wings .05—.07 inch.

Nine specimens. The antennæ do not quite attain the origin of the first discoidal when the wings are expanded, and the stigma is twice as long as wide and hunched both anteriorly and posteriorly, its tips moderately acute. Occurs in elm-leaf galls, which are well described by Fitch (loc. cit.)

#### BYRSOCRYPTA Haliday. (Fig. 7.)

*Byrsocrypta*? (*pemphigus*) *caryæcaulis* Fitch, (hickory) N. Y. Rep. I, p. 155, winged insect unknown.—*B*? (*pemphigus*) *vitifoliæ* Fitch, (grape vine) ibid. p. 158, winged insect unknown.—*B*? (*pemphigus*) *caryævenæ* Fitch, (hickory) ibid. II, §164, winged insect unknown.—*B*. (*pemphigus*) *populicaulis* Fitch, (poplars) ibid. §353.—*B*? (*pemphigus*) *popularia* Fitch, (poplar) ibid. §354.—*B*? (*pemphigus*) *populi-globuli* Fitch, (poplar) ibid. §355.—*B*? (*pemphigus*) *populivenæ* Fitch, (poplar) ibid. §356.—*B*. *hamamelidis* Fitch, (conical follicles on upper surface of witch-hazel leaves) N. Y. Cat. Homopt. p. 69.——8 species.

I have been unable to perceive that *P. populicaulis* Fitch, which I find very abundant on the leaves of the cotton-wood, (*populus angulata*) carries its wings horizontally folded before it leaves the gall, as stated by its describer. I carefully examined many dozen specimens in freshly opened galls, and they all had their wings steeply roofed. The galls on the cotton-wood are precisely similar to those figured and described by Fitch as found on other poplars.

*Pemphigus*, is defined by Koch as having antennal joints 4—6 "pretty equally long," which is the case with the species described below under that genus, joint 5 being a trifle the longest of the three, and apparently also with *P. pyri* Fitch; for Dr. Fitch says that in the larva of that species the penultimate is longer than the last joint. (3rd N. Y. Rep. p. 9.) On the contrary in *P. populicaulis* Fitch the last joint is as long as the two penultimate joints put together, which separates it generically from *P. pyri*, and forbids its being referred to *Pemphigus* as limited by Koch. In *Aphidæ* the comparative length of the joints of the antennæ seems to be of very high generic value, although the length of the whole antenna varies remarkably in species referred to the same genus. In *Aphis ribis*, for example, the antennæ nearly attain the tips of the expanded wings; in

*A. maidis* they only attain the origin of the 1st discoidal vein; yet in both, the proportions of the different joints are essentially the same.

Setting aside these structural differences, it seems unnatural to place in the same genus two insects whose habits are so totally distinct as those of *P. populea* Fitch and *P. pyri* Fitch. The more natural our systems of classification become, the more are insects of dissimilar habits grouped under different genera.

***Byrsocrypta pseudobyrsa* n. sp.**—Pale obscure greenish, pruinose. Antennæ sometimes obfuscated, always with the 6th joint unguiculate. Thorax blackish, pruinose. Joints of abdomen with obscure fuscous fasciæ. Legs with the tarsi, and sometimes the tips of the femora, obfuscated. Wings whitish, subopaque, costa and stigma yellowish; veins hyaline except the costals which are pale yellowish-brown, the subcostal generally blackish at base and black at the stigma but not thickened there. Hind wings with all the veins hyaline. Length to tip of wings .10—.13 inch.

Six specimens. The antennæ scarcely attain the base of the 1st discoidal of the expanded wing, and the stigma is about three times as long as wide and very acutely pointed at its basal end. Forms near the middle of the midrib of the leaf of the cotton-wood (*populus angulata*) what appears above as a smooth, green, semicircular, compressed gall, crowned by the midrib, and from one-quarter to two-fifths of an inch long, but which below is entirely open, the sides of the leaf bending down together so as to touch each other and conceal the opening. The insects often wander from this false gall and associate with *Aphis populifoliae* Fitch. Comes very near *popularia* Fitch, (the gall of which is unknown,) but that species has the discoidals "blackish" and the "antennæ only  $\frac{2}{3}$  the distance to the wing-sockets." Differs from *populi-globuli* and *populivense* Fitch in the subcostal not being thickened at the stigma, and also in the peculiar structure of its gall.

The recent larva is densely covered with white pruinescence, on removing which it is yellowish, with only the eyes and the tarsi blackish, and the disk of the abdomen freckled with reddish.

***Byrsocrypta vagabunda* n. sp.**—Black, polished, with no appearance of pruinescence. Antennæ and legs dull fuscous. Abdomen and venter obscure opaque-yellowish, varied with fuscous or sometimes with brown. Wings subhyaline with a whitish tinge, costal and subcostal veins and one-third of the inner edge of the wing from the tip of the 1st discoidal to the base of the wing, conspicuously fuscous; the remaining veins in both wings whitish hyaline; costa slightly tinged with brown, stigma pale fuscous-brown, its interior vein thickened. Alar expanse .43—.51 inch.

Eleven specimens. The 6th joint of the antennæ is two-thirds as long

as 4 and 5 put together; and the stigma is  $3\frac{1}{2}$  times as long as wide, very acutely pointed at both ends. Three or four specimens have a little white pruinescence still attached to their wings. Occurred very abundantly on various forest trees in September. This is the largest known N. A. species either of this or the following genus, *P. pyri* expanding only .38 inch. That species is distinguished at once from *vagabunda* by its wing-veins being all black.

### PEMPHIGUS Hartig. (Fig. 6.)

*Pemphigus pyri* Fitch, (apple-tree roots) N. Y. Rep. I, p. 9.——1 species.

The species described below under this genus differ from *Pemphigus* as limited by Koch, chiefly in the stigma being short or rather short, not "narrow and long." I do not consider this character of much generic value in *Aphidæ*. In *Aphis avenæ* the stigma is four times as long as wide; in *A. mali* only twice as long as wide; and the two extremes of length in that genus seem to be connected by an unbroken series of intermediate grades, as is partially exemplified in the few species described above.

I suspect that all the species properly referable to this genus live underground and derive their nourishment from roots. Authors have long noticed that Aphidian insects are found in ants' nests, and Westwood states that all species found in such situations are apterous. (Introd. II, p. 441.) I have succeeded in breeding to the winged state one species found in the nest of a common yellow ant, described below as *Formica aphidicola*, and I have found numerous winged specimens of another species on various occasions in the nests of the same ant, in company with prodigious numbers of larvæ. Both species appertain to *Pemphigus*, with the exception of the above noticed differences in the stigma. I have also ascertained from repeated observations the very curious fact, that the ants fetch the larvæ of *Pemphigus formicetorum* mihi, home to their nests, from the roots on which they feed, and place them in little clusters of 50 or 60 individuals, where they soon elaborate such a dense mass of white cottony matter as to entirely conceal them. The proof of this rests upon the circumstance that I have often noticed clusters of these larvæ—some covered with flocculent matter, some naked—in nests located in honey-combed stumps more than a foot from the ground, where there are no roots for them to feed on. They are also found on the inferior surface of flat stones covering the nest; and in both cases they are generally placed close to

the chambers containing the larvæ of the ants, so that the consumers may be as near as possible to the producers. If the flat stone covering the nest, and studded with groups of the larvæ of these *pemphigi*, is carefully replaced, and the nest revisited some hours afterwards, it is found that they are generally most of them carried off. That this must be done by the ants is proved by the fact, that the *pemphigi* show no disposition to wander off, unless disturbed, and that if they are disturbed, the ants are just as eager to carry them off to a place of safety as to carry off their own larvæ. On one occasion when the root of a tree happened to cross one of the underground passage-ways constructed by the ants, I noticed upon it, some inches below the surface of the earth, a cluster of these larvæ; which proves that that species inhabits the roots of trees and not those of herbaceous plants.

*Pemphigus formicarius* n. sp.

Two kinds of *larvæ* occurred in company; the first, when recent, scarcely twice as long as wide and whitish; the second, when recent, three times as long as wide and cinereous. From the latter I bred five *winged* individuals, which differed as follows from the description of *P. pyri* Fitch:—The size is somewhat smaller; the prothorax and abdomen of the living insect are blue-black, pruinose, in the dried specimen pale yellowish-brown, the abdomen much varied with fuscous; the thorax and head, both in the living and dried insect, are opaque blue-black. Legs yellowish-fuscous. Wings hyaline, slightly fumose at tip; veins not margined with brown; the 2nd discoidal is not more robust than the 1st and does not taper; the costa and the anterior half of the stigma are very pale fuscous or cinereous, the latter a little darker; the posterior half of the stigma is black. In the hind wings the apex of the black rib-vein or subcostal is nearly twice as far from the apex of the 2nd discoidal as that is from the apex of the 1st discoidal.

Length to tip of wings .2 inch; expanse .33 inch. Five specimens. The stigma is much hunched posteriorly, more acute at the basal than the terminal end, and rather more than twice as long as wide. Bred Oct. 11th from larvæ found 8 or 10 days before in the nest of *Formica aphidicola* mihi, attached to the root of what appeared to be a perennial herbaceous plant.

*Pemphigus formicetorum* n. sp.

Differs from *P. pyri* as follows:—The size is much smaller; the 2nd discoidal is not more robust than the 1st, and is of uniform robustness

throughout; the 3rd discoidal is of equal robustness with the 1st; the 4th or stigmal vein is of equal robustness with the 1st and does not taper; in the hind wing the apex of the 2nd discoidal is nearly twice as far from the apex of the rib-vein as it is from the apex of the 1st discoidal.

Length to tip of wings .09—.12 inch; expanse .20—.25 inch. Fourteen specimens. The stigma is three times as long as wide, very acute at the basal end, and not materially wider than the costa. Found winged specimens May 25th in company with many larvæ and pupæ, and obtained others in the course of June, all in the nests of the same yellow ant before mentioned. A specimen of the woolly secretion of the larvæ which I have preserved appears under the lens like cotton wool, but at least ten times as fine and snowy-white. From the nests of the same ant I have obtained the rare *ceophyllus monilis* Lec., (pselaphidæ,) *hetærius brunni-pennis* Randall, (histeridæ,) and an undetermined species of *Phthora*, (tenebrionidæ).

#### CHERMES Burm?

*Chermes pinifoliæ* Fitch, (pine) N. Y. Rep. II, §267.—*C. laricifoliæ* Fitch, (larch) *ibid.* §289.——2 species.

#### PHYLLOXERA Fonscolombe. (Fig. 8.)

*Phylloxera caryæfoliæ* Fitch, (hickory) N. Y. Rep. II, §166.—*P?* (*chermes*) *castanææ* Hald. *ibid.* §203.——2 species.

##### *Phylloxera caryæ-globuli* n. sp.

Differs from *P. caryæfoliæ* Fitch as follows:—The size is larger; the abdomen is not pale but blackish; the whole costa is pale brown, the stigma with a yellowish tinge; the 3rd or stigmal vein is not abortive at its origin; the 2nd or middle vein is not parallel with the 3rd but each of the two is slightly convex towards the other, as is also the case in *P. caryæfoliæ*, although overlooked by Dr. Fitch; neither is the origin of this middle vein "abortive for a short distance," so far as I have observed, in either of these two species, as stated of *P. caryæfoliæ* by the same author. The hind wings have the same "angular point" or hook on their anterior margin, used to attach them to the thickened spot on the posterior edge of the front wing, which I have found in every Aphidian species known to me.

Length to tip of wings .07—.08 inch. Three specimens. The antennæ are scarcely longer than the head and I am unable to distinguish the joints. The stigma is about three times as long as wide, straight pos-



teriorly, slightly hunched anteriorly, and acute at both ends. Found in spherical galls generally located between the veins that branch from the midrib of the leaflet of the shag-bark hickory. I am acquainted with the similar galls of *Pemphigus caryæcaulis* Fitch, which grow on the leaf-stalks and twigs of the same tree, but like Dr. Fitch I have never yet met with the winged insect. From the similarity of its galls to that of the above and its occurring on the same tree, that insect may not improbably belong to *Phylloxera*. The gall of *P. caryæ-globuli* often occurs in company with that of *P. caryæfoliæ*, but it is very distinct. On June 8th I noticed a few imagoes of a large *Thrips* in some galls of *P. caryæfoliæ* which were at that time full of their normal tenants; on June 22nd I noticed in galls of the same insect on the same trees many red pupæ, apparently of the same *Thrips*, which seem to have supplanted or exterminated the *Phylloxeræ*; for almost every gall contained 6 or 7 Thripide pupæ and but very few *Phylloxeræ*.

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#### HYMENOPTERA.—FORMICIDÆ.

The yellow ant mentioned above under the genus *Pemphigus* is not described either by Say or by Fitch. It may probably be a Fabrician species; but as I possess the three sexes taken from the same nest it may be worth while to describe it. It belongs to Say's § B of *Formica* "1st cubital cellule with a recurrent nervure," and somewhat resembles *F. dislocata* Say, of which species also I have the sexes from the same nest, but is much smaller, and the ♀♀ of that species are not yellow but piceous.

*Formica aphidicola* n. sp.—♂. Piceous. Epistoma longitudinally carinate, the carina wide and quadrangular; tips of antennæ a little pale; eyes black and almost round. Abdominal scale slightly emarginate above, with no indentation opposite to it. Legs with the tips of tibiæ, and the tarsi ferruginous. Wings subhyaline, much clouded with brown on their basal half; nervures and stigma brown; the recurrent nervure forming the discoidal cell generally abbreviated, so as to leave the cell incomplete; anal nervure abruptly angulated in its middle, and interrupted before the angulation. The ♀ differs in being larger and paler, and in the legs and antennæ being ferruginous. The carina of the epistoma is absent. The ♀ differs from ♂ in being entirely yellow, except the eyes which are very small and black. When dried it assumes a slight rufous tint. The carina of the epistoma is absent. Length ♂ .15—.16 inch; ♀ .25 inch; ♀ .15 inch. Alar expanse ♂ .44 inch; ♀ .60 inch.

Described from 2 ♂, 2 ♀, 5 ♀.

*Formica latipes* n. sp.

We have another yellow ant, the ♀ of which is scarcely distinguishable from ♀ *F. aphidicola* but by its being a trifle smaller and paler. The ♂ is exactly alike, but the ♀ differs most remarkably, 1st in being ferruginous, with the thorax more or less piceous; 2nd in having short, robust antennæ, no longer than those of ♀, which has a body only half as long; 3rd in having femora and tibiæ so strongly and widely compressed as to be not much more than twice as long as wide, and truncate at tip, the femora deeply excavated at tip to receive the tibiæ; 4th in the whole body being covered with a long cinereous pubescence. This species is, so far as I am aware, undescribed.

Length ♂ .15—.17 inch; ♀ .35—.36 inch; ♀ .13—.15 inch. Expanse ♂ .39—.43 inch; ♀ .80—.88 inch. Described from 14 ♂, 2 ♀, 5 ♀ from the same nest. Of the 14 ♂, 8 had a recurrent nerve in both wings, 3 in one wing only, and 3 in neither wing, the nerve when present often abbreviated as in the preceding species. In both ♀ the recurrent nerve was present and unabbreviated. I have noticed a similar variation in another species of *Formica*, which shews that Say's subdivision of the genus is not natural nor practically reliable.

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 RECAPITULATION OF U. S. APHIDÆ.

	DESCRIBED U. S. SPECIES.	NEW U. S. SPECIES.	TOTAL U. S. SPECIES.
APHIS	23	4	27
CALAPHIS n. g.	0	1	1
CALLIPTERUS	7	0	7
LACHNUS	9	0	9
ERIOSOMA	5	2	7
THELAXES	0	1	1
BYRSOCRYPTA	8	2	10
PEMPHIGUS	1	2	3
CHERMES	2	0	2
PHYLLOXERA	2	1	3
TOTAL	57	13	70

*Rock Island, Illinois; Nov. 5, 1862.*



PROCEEDINGS  
OF THE  
ENTOMOLOGICAL SOCIETY  
OF PHILADELPHIA.

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STATED MEETING, JANUARY 12.

President BLAND in the Chair.

Sixteen members present.

REPORT OF COMMITTEE.

The Committee on Mr. Grote's paper, read December 8th, 1862, reported in favor of its publication in the Proceedings of the Society.

DONATIONS TO CABINET.

37 DIPTERA (*Scæva affinis*, *Scæva philadelphia*, *Scæva americana*, *Scæva concava*, *Chrysotoxum fasciolatum*, *Brachypalpus verbosus*, *Helophilus similis*, *Volucella obesa*), from Dr. T. B. Wilson.

17 British HYMENOPTERA (*Apathus rupestris*, *Apathus barbutellus*, *Apathus campestris*, *Bombus terrestris*, *Bombus lucorum*, *Bombus hortorum*, *Bombus subterraneus*, *Bombus lapidarius*, *Bombus muscorum*), from Edward Norton.

7 DIPTERA (*Scæva imarginata*, *Chrysogaster Antithous*, *Trypeta geminata*, *Camptoneura picta*), from E. T. Cresson.

89 COLEOPTERA (*Azinopalpus biplagiatus*, *Lebia pumila*, *Dromius piceus*, *Bembidium versicolor*, *Helophorus lacustris*, *Colymbetes biguttulus*, *Thymalus fulgidus*, *Nitidula ziczac*, *Nitidula uniguttata*, *Ocypus ater*, *Lucanus placidus*, *Aphonus frater*, *Elater rubricus*, *Elater areolatus*, *Limonium griseus*, *Thaneroclerus sanguineus*, *Platydemus excavatum*, *Mordella marginata*, *Mordella triloba*, *Æditha obsoletus*, *Leptura Canadensis*, *Cryptocephalus sellatus*), from William Saunders of London, C. W.

23 COLEOPTERA (*Colymbetes binotatus*, *Penthe pimela*, *Notoxus anchora*, *Criocephalus agrestis*, *Oallidium janthinum*, *Physocnemum ligneum*, *Coccinella transversoguttata*), from B. Billings, Jr., of Prescott, C. W.

6 DIPTERA (*Exoprosopa emarginata*, *Anthrax sinuosa*, *Laphria saniosa*, *Baccha Tarchetius*, *Microdon globosus*), from Charles Wilt.

3 COLEOPTERA (*Anthia 10-guttata*, *Strategus Alceus*, *Dynastes Hyllus*), from Dr. Samuel Lewis.

3 DIPTERA (*Scæva Lesueurii*, *Spilomyia analis*), from Jas. Ridings.

1 DIPTERA (*Xylota Libo*), from William Evett.

#### DONATIONS TO LIBRARY.

*Journal of the Academy of Natural Sciences of Philadelphia, Second Series, Vol. 5, Parts 1 and 2*; also the *Proceedings for 1862, Nos. 1—9*. Presented by Dr. Thomas B. Wilson.

*Prairie Farmer (Chicago, Ill.)*, Nos. 23 to 26 of Vol. 10. From the Editors.

*Proceedings of the Society for October, November and December, 1862*. From the Publication Committee.

The following works were deposited by Dr. T. B. Wilson:—

*Linnaea Entomologica*. Band 1—14. 14 Vols. 8vo.

*Entomologische Zeitung*. Herausgegeben von dem Entomologischer Vereine zu Stettin. 1840—1860. 21 Vols. 8vo.

*Zeitschrift für die Entomologie*. Von E. F. Germar. 5 Vols. 8vo.

*Tijdschrift voor Entomologie*, uitgegeven door de Nederlandsche Entomologische Vereeniging. 3 Vols. Royal 8vo.

*Mémoires d'Entomologie publiés par la Société Entomologique des Pays Bas*. 1 Vol. Royal 8vo.

*Catalogue Systématique de tous les Coléoptères décrits dans les Annales*

*de la Société Entomologique de France, depuis 1832 jusqu'à 1859. Par Alexandre Strauch. 1 Vol. 8vo.*

#### WRITTEN COMMUNICATIONS.

Letters were read

From the Smithsonian Institution at Washington, D. C., acknowledging the receipt of Vol. 1, No. 5, of the Society's Proceedings.

From the Secretary of the Entomological Society of London, dated 12 Bedford Row, December 3rd, 1862, acknowledging the receipt of recent numbers of the Society's Proceedings.

From Mr. Harvey J. Rich, dated Brooklyn, N. Y., December 14, 1862; Dr. Beverley R. Morris, dated Toronto, C. W., December 26th, 1862, and B. Billings, Jr., dated Prescott, C. W., December 30th, 1862, severally acknowledging their election as Corresponding Members of the Society.

The following papers were presented for publication in the Proceedings:

"Descriptions of a few new species of North American Coleoptera, by James H. B. Bland."

"Catalogue of our known species of Ophion, Anomalon, Paniscus and Campoplex, by Edward Norton."

"Lasioptera reared from a gall on the golden rod, by Baron R. Osten Sacken."

"Importance of Insect Architecture to Entomologists, and Remarks on Tent-Building Ants, by William Couper."

And were referred to Committees.

#### ELECTIONS.

The following gentlemen were elected *Corresponding Members* of the Society:—

John Xantus, of Washington, D. C.

C. Sartorius, M. D., of Mexico.

M. Miles, of Lansing, Michigan.

George D. Smith, of Boston, Massachusetts.

Edward L. Graef, of Brooklyn, New York.

## Catalogue of the described species of North American HYMENOPTERA.

BY E. T. CRESSON.

(Continued from page 238.)

## Fam. BEMBECIDÆ.

## BEMBEX Latr.

- americanæ* Fabr. Ent. Syst. 2, p. 250. *Dahlb.* Hymen. Europ. 1, p. 183. N. Amer.  
*carolina* Fabr. Entomologia Systematica, 2, p. 249. Carolina.  
*fasciata* Fabr. Systema Piezatorum. p. 224. Carolina.  
*longirostra* Say, Boston Journal of Natural History, vol. 1, p. 366. Mexico.  
*monodonta* Say, Long's Second Expedition, vol. 2, p. 335. Pennsylvania.  
*Spinolæ* St. Farg. Hyménoptères, 3, p. 277. North America.  
*spinosa* Fabr. Entomologia Systematica, Suppl. p. 260. Amer. Insulis (W. Ind?).

## MONEDULA Latr.

- insularis* Dahlb. Hymenoptera Europæa, 1, p. 186. St. Thomas.  
*Monteruma* Smith, British Museum Catalogue, Hym. 4, p. 334. Mexico.  
*pletifrons* Smith, British Museum Catalogue, Hym. 4, p. 335. North Carolina.  
*4-fasciata* Say, Long's Second Expedition, vol. 2, p. 336. Pennsylvania.  
*Sallé* Guér. Iconographie du Règne Animal, 3, p. 437. New Orleans.  
*ventralis* Say, Long's Second Expedition, vol. 2, p. 337. Pennsylvania.  
*vigilans* Harris, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.

## STIZUS Latr.

- grandis* Say, West. Quar. Rep. 2, p. 77. American Entomology, pl. 2. Arkansa.  
*Hogardii* Latr. Gen. Crust. et Ins. 4, 100; t. 13, f. 12. Sm. B. M. C. 4, 336. W. Indies.  
*unicinctus* Say, West. Quar. Rep. 2, 77. American Entomology, pl. 2. Arkansa.

## Fam. SPHEGIDÆ.

## POMPILUS Latr.

- algidus* Smith, British Museum Catalogue, Hym. 3, p. 158. North America?  
*americanus* Beauv. Ins. Afr. et Amér. p. 117; Hym. pl. 3, fig. 6. United States.  
*anceps* Smith, Trans. Entom. Soc. London, 3rd series, vol. 1, p. 36. Panama.  
*apiculatus* Smith, British Museum Catalogue, Hym. 3, p. 157. Mexico.  
*architectus* Say, Boston Journal of Natural History, vol. 1, p. 303. Ohio.  
*atramentarius* Dahlb. Hymenoptera Europæa, 1, p. 48. North America.  
*atroviolaceus* Harris, Catalogue of the Insects of Massachusetts, 2nd edition.  
*atrox* Dahlb. Hymenoptera Europæa, 1, p. 63. South Carolina.  
*biguttatus* Fabr. Entomologia Systematica, Suppl. p. 249. North America.  
*bipartitus* St. Farg. Hyménoptères, 3, p. 439. Philadelphia.  
*calipterus* Say, Boston Journal of Natural History, vol. 1, p. 302. Indiana.

*cornicus* Say, (Miscus) Boston Journal of Natural History, vol. 1, p. 305. Indiana.  
*coruscus* Smith, British Museum Catalogue, Hym. 3, p. 156. St. Domingo.  
*debilis* Harris, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*ephippiger* Smith, British Museum Catalogue, Hym. 3, p. 158. North America.  
*erythrus* Smith, British Museum Catalogue, Hym. 3, p. 156. Jamaica.  
*fascipennis* Say, Long's Second Expedition, 2, p. 332. United States.  
*ferrugineus* Dahlb. Hymenoptera Europæa, 1, p. 63. North America.  
*flammipennis* Smith, British Museum Catalogue, Hym. 3, p. 155. St. Domingo.  
*formosus* Say, West. Quar. Rep. 2, p. 76. American Entomology, pl. 42. N. Amer.  
*fuscipennis* St. Farg. Hyménoptères, 3, p. 434. Philadelphia.  
*lepidus* Say, Boston Journal of Natural History, vol. 1, p. 304. Mexico.  
*maculipennis* Smith, British Museum Catalogue, Hym. 3, p. 159. North America.  
*marginatus* Say, Long's Second Expedition, vol. 2, p. 333. North-west Territory.  
*mellipes* Say, Boston Journal of Natural History, vol. 1, p. 304. Indiana.  
*mixtus* Fabr. Entomologia Systematica, Suppl. p. 248. Americæ Insulis (W. Ind?).  
*pallidicornis* Smith, British Museum Catalogue, Hym. 3, p. 160. Florida.  
*petiolatus* Say, (Miscus) Boston Journal of Natural History, vol. 1, p. 305. Indiana.  
*Philadelphicus* St. Farg. Hyménoptères, 3, p. 423. Philadelphia.  
*plebejus* Dahlb. Hymenoptera Europæa, 1, p. 60. North America.  
*5-notatus* Say, Boston Journal of Natural History, vol. 1, p. 304. Indiana.  
*senilis* Fabr. Systema Piezatorum, p. 188. Americæ Insulis (West Indies?).  
*solicitus* Harris, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*sordidus* Smith, British Museum Catalogue, Hym. 3, p. 160. North America.  
*speirapterus* Harris, Catalogue of the Insects of Massachusetts, 2nd edition.  
*tarsatus* Harris, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*terminatus* Say, American Entomology, plate 42. Arkansa.  
*trifasciatus* Beauv. Insects Afr. et Amér. p. 118, Hym. pl. 3, fig. 7. United States.  
*unifasciatus* Say, American Entomology, plate 42. Pennsylvania.  
*vafer* Harris, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.

#### MISCUS Jurine.

*stygius* Harris, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.

#### PRIOCENEMIS Schiödt.

*nebulosus* Dahlb. Hymenoptera Europæa, 1, p. 96. South Carolina.

#### AGENIA Schiödt.

*caeruleoens* Dahlb. Hymenoptera Europæa, 1, p. 93. South Carolina.

*fulvipes* Dahlb. Hymenoptera Europæa, 1, p. 92. Pennsylvania. South Carolina.

#### ANOPLIUS St. Farg.

*funereus* St. Farg. Hyménoptères, 3, p. 449. Philadelphia.

#### FERREOLA St. Farg.

*sanguinea* Smith, British Museum Catalogue, Hym. 3, p. 170. Georgia.

#### APORUS Spin.

*fasciatus* Smith, British Museum Catalogue, Hym. 3, p. 175. United States.



**PARAPOMPILUS** Smith.

*Naomi* Smith, British Museum Catalogue, Hym. 3, p. 177. St. Domingo.

**CEBOPALES** Latr.

*apicalis* Say, Boston Journal of Natural History, vol. 1, p. 366. Indiana.  
*bipunctata* Say, Long's Second Expedition, vol. 2, p. 334. United States.  
*denticulata* Harris, Catalogue of the Insects of Massachusetts, 2nd edition.  
*fasciata* Say, Long's Second Expedition, vol. 2, p. 333. United States.  
*ferruginea* Say, Long's Second Expedition, vol. 2, p. 334. United States.  
*fraterna* Smith, British Museum Catalogue, Hym. 3, p. 180. United States.  
*interrupta* Say, Boston Journal of Natural History, vol. 1, p. 365. Indiana.  
*longipes* Smith, British Museum Catalogue, Hym. 3, p. 179. Georgia.  
*piciventris* Harris, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.

**HEMIPEPSIS** Dahlb.

*ustulata* Klug. Dahlb. Hymenoptera Europæa, 1, p. 123. Mexico.

**PEPSIS** Fabr.

*castanea* Beauv. Insectes Afr. et Amér. p. 95, Hym. pl. 2, fig. 4. St. Domingo.  
*Domingensis* St. Farg. Hyménoptères, 3, p. 477. St. Domingo.  
*elegans* St. Farg. Hyménoptères, 3, p. 489. Pennsylvania.  
*luteicornis* Fabr. Systema Piezatorum, p. 214. Beauv. Ins. Hym. pl. 1, f. 5. Carolina.  
*marginata* Beauv. Ins. Afr. et Amér. p. 94; Hym. pl. 2, figs. 2 & 3. St. Domingo.  
*Montesuma* Smith, British Museum Catalogue, Hym. 3, p. 199. Mexico.  
*obscura* St. Farg. Hym. 3, 490. Smith, Tr. Ent. Soc. London, 3d ser. 1, 36. Panama.  
*ornata* St. Farg. Hym. 3, 486. LaSagra, Hist. Cuba. Cuba.  
*prismatica* Smith, British Museum Catalogue, Hym. 3, p. 200. Mexico.  
*quadrata* St. Farg. Hyménoptères, 3, p. 478. St. Domingo.  
*saphirus* Beauv. Insectes Afr. et Amér. p. 39, Hym. pl. 1, fig. 4. St. Domingo.  
*Sommeri* Dahlb. Hymenoptera Europæa, 1, p. 465. Mexico.  
*speciosa* Beauv. Insectes Afr. et Amér. p. 95; Hym. pl. 2, fig. 5. St. Domingo.  
*sulphureicornis* Beauv. Ins. Afr. et Amér. p. 95; Hym. pl. 2, fig. 6. St. Domingo.  
*T* Beauv. Insectes Afr. et Amér. p. 117; Hym. pl. 3, fig. 5. U. States. St. Domingo.

**AMMOPHILA** Kirby.

*aberti* Hald. Stansbury's Salt Lake Expedition, Append. vol. 2, p. 368. Ft. Gates.  
*apicalis* Guér. Iconographie du Règne Animal, 3, p. 435; tab. 70, fig. 3. Cuba.  
*arvensis* St. Farg. Hyménoptères, 3, p. 384. North America.  
*atriceps* Smith, British Museum Catalogue, Hym. 4, p. 221. Mexico.  
*breviceps* Smith, British Museum Catalogue, Hym. 4, p. 221. Mexico.  
*cementaria* Smith, British Museum Catalogue, Hym. 4, p. 223. Florida. Georgia.  
*conditor* Smith, British Museum Catalogue, Hym. 4, p. 223. Florida.  
*fulvicaulis* Harris, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*gracilis* St. Farg. Hyménoptères, 3, p. 381. Mexico.  
*Gryphus* Smith, British Museum Catalogue, Hym. 4, p. 222. North America.  
*intercepta* St. Farg. Hyménoptères, 3, p. 378. North America.  
*luctuosa* Smith, British Museum Catalogue, Hym. 4, p. 224. N. Scotia. California.  
*lugubris* Harris, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.

*nigricans* *Dahlb.* Hymenoptera Europæa, 1, p. 14. South Carolina.  
*placida* *Smith*, British Museum Catalogue, Hym. 4, p. 221. California.  
*procera* *St. Farg.* Hym. 3, p. 376. *Dahlb.* Hymen. Europ. 1, p. 15. N. America.  
*sæva* *Smith*, British Museum Catalogue, Hym. 4, p. 222. California.  
*urnaria* *Klug.* *Dahlb.* Hymenoptera Europæa, 1, p. 14. S. Carolina. Pennsylvania.  
*violaceipennis* *St. Farg.* Hyménoptères, 3, p. 370. Philadelphia.

#### CHALYBION *Dahlb.*

*Zimmermanni* *Dahlb.* Hymenoptera Europæa, 1, p. 22. South Carolina.

#### PELOPÆUS *Latr.*

*abbreviatus* *Fabr.* Syst. Piez. 204. *Dahlb.* (Ammophila) Hym. Eur. 1, 15. S. Car.  
*architectus* *Klug.* *St. Farg.* Hyménoptères, 3, p. 313. New Orleans.  
*assimilis* *Dahlb.* Hymenoptera Europæa, 1, p. 23. Cuba.  
*Canadensis* *Smith*, British Museum Catalogue, Hym. 4, p. 223. Canada.  
*fasciatus* *St. Farg.* Hyménoptères, 3, p. 315. *Smith*, Brit. Mus. Cat. St. Domingo.  
*figulus* *Dahlb.* Hymenoptera Europæa, 1, p. 23. *Smith*, B. M. C. 4, 234. St. Domingo.  
*Servillei* *St. Farg.* Hyménoptères, 3, p. 313. New Orleans.  
*Solieri* *St. Farg.* Hyménoptères, 3, p. 318. Gaudeloupe.

#### PODIUM *Fabr.*

*luctuosum* *Smith*, British Museum Catalogue, Hym. 4, p. 235. North Carolina.  
*opalinum* *Smith*, British Museum Catalogue, Hym. 3, p. 236. Jamaica.  
*rufipes* *Fabr.* Syst. Piez. p. 183. *Smith*, Brit. Mus. Cat. 4, p. 235. St. Domingo.

#### CHLORION *Fabr.*

*cyaneum* *Dahlb.* Hymenoptera Europæa, 1, p. 24. North America.

#### SPHEX *Linn.*

*abdominalis* *Drury*, Insects, 1, p. 108; tab. 45, fig. 2. Jamaica.  
*affinis* *Fabr.* Entomologia Systematica, 2, p. 203. Americæ Insulis (West Indies?).  
*amethystina* *Fabr.* Entomologia Systematica, 2, p. 210. St. Crucis.  
*apicalis* *Harris.* *Smith*, British Museum Catalogue, Hym. 4, 262. Florida. Georgia.  
*argentata* *Dahlb.* Hym. Europ. 1, p. 25. *Smith*, Brit. Mus. Cat. 4, 252. Florida.  
*atrata* *St. Farg.* Hym. 3, 355. *Smith*, (Priononyx) Brit. Mus. Cat. North America.  
*Cementaria* *Drury*, Insects, 1, p. 105; tab. 44, fig. 6. West Indies.  
*cœrulea* *Linn.* Systema Naturæ, 2, p. 941. *Drury*, Insects, 2, pl. 39, fig. 8. N. Amer.  
*crassus* *St. Farg.* Hyménoptères, 3, p. 351. North America.  
*cyaneum* *Linn.* Systema Naturæ, 2, p. 941. North America.  
*dimidiata* *St. Farg.* Hyménoptères, 3, p. 352. North America.  
*dorsalis* *St. Farg.* Hym. 3, 347. *Smith*, Tr. Ent. Soc. Lond. 3 ser. 1, 36. Panama.  
*elegans* *Smith*, British Museum Catalogue, Hym. 4, p. 262. California.  
*flavipes* *Fabr.* Ent. Syst. 2, p. 202. *Smith*, (Pelopæus) B. M. C. 4. North America.  
*flavipes* *Smith*, British Museum Catalogue, Hym. 4, p. 263. Georgia.  
*habena* *Say*, Insects of Louisiana, p. 14. Louisiana.  
*heros* *Fabr.* Ent. Syst. Suppl. p. 245. *Dahlb.* (Pepsis) Hymen. Europ. 1, p. 122. W. I.  
*ichneumonæa* *Linn.* Syst. Nat. 2, p. 959. *St. Farg.* Hym. 3, p. 346. North America.  
*instabilis* *Smith*, British Museum Catalogue, Hym. 4, p. 263. North America.  
*jamaicensis* *Fabr.* Entomologia Systematica, 2, p. 203. Jamaica.

*labrosa* Harris, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*lanierii* Guér. Iconographie du Règne Animal, 3, p. 433; tab. 70, fig. 2. Cuba.  
*lunata* Fabr. Entomologia Systematica, 2, p. 203. Americæ Insulis (West Indies?).  
*ornata* St. Farg. Hyménoptères, 3, p. 344. Cuba.  
*pennsylvanica* Linn. Systema Naturæ, 2, p. 941. Beauv. Ins. pl. 3, fig. 4. Penn.  
*petiolatus* Drury, Insects, 2, p. 75; tab. 39, fig. 7. Jamaica.  
*philadelphica* St. Farg. Hyménoptères, 3, p. 340. Philadelphia.  
*plumipes* Drury, Insects, 1, p. 104; tab. 44, fig. 5. New York.  
*rubra* Drury, Insects, 2, p. 75; tab. 39, fig. 6. Antigua.  
*ruficornis* Fabr. Entomologia Systematica, 2, p. 219. Beauv. Ins. pl. 2, f. 1. St. Dom.  
*rufipes* St. Farg. Hyménoptères, 4, p. 343. Port-au-Prince.  
*singularis* Smith, British Museum Catalogue, Hym. 4, p. 261. Honduras.  
*speciosus* Drury, Insects, 2, p. 71; tab. 38, fig. 1. (North America.)  
*stellata* Fabr. Ent. Syst. 2, p. 219. Beauv. Ins. p. 259; Hym. pl. 10, fig. 4. St. Dom.  
*thomæ* Fabr. Entomologia Systematica, 2, p. 199. St. Thomas.  
*tibialis* St. Farg. Hyménoptères, 3, p. 339. Philadelphia.  
*tropica* Linn. Systema Naturæ, 2, p. 945. Smith, (Pompilus) B. M. C. 3. N. Amer.  
*violaceipennis* St. Farg. Hyménoptères, 3, p. 349. Philadelphia.

#### AMPULEX Jurine.

*canaliculata* Say, Western Quarterly Reporter, vol. 2, p. 76. Missouri.  
*pennsylvanicus* Hald. Proceedings Academy Natural Sciences, Phila. 4, 203. Penn.

#### RHINOPSIS Westw.

*Abbottii* Westw. Arcana Entomologica, 2, p. 68; tab. 65, fig. 5. Georgia.

### Fam. SCOLIADÆ.

#### MYZINE Latr.

*flavipes* Oliv. Encyclopédie Méthodique, Insects, 8, p. 136. Carolina.  
*hamatus* Say, Boston Journal of Natural History, vol. 1, p. 300. Indiana.  
*nitida* Smith, British Museum Catalogue, Hym. 3, p. 77. Jamaica.  
*proxima* Guér. Dict. pitt. d'Hist. Nat. 5, p. 575. North America.

#### PLESIA Jurine.

*analis* Guér. Revue Zoologique, 1838, p. 58. Mexico.  
*fuliginosa* St. Farg. Hyménoptères, 3, p. 581. Pennsylvania.  
*marginata* Say, Western Quarterly Reporter, vol. 2, p. 75.  
*menechma* St. Farg. Hyménoptères, 3, p. 583. Carolina.  
*romandii* Guér. Revue Zoologique, 1838, p. 59. St. Thomas.  
*sellata* St. Farg. Hyménoptères, 3, p. 577. Iles d'Amérique (West Indies?).  
*sexmaculata* Guér. Revue Zoologique, 1838, p. 57. Mexico.

#### MERIA Jurine.

*collaris* Say, Boston Journal of Natural History, vol. 1, p. 362. Indiana.  
*costata* Say, Boston Journal of Natural History, vol. 1, p. 361. Indiana.

**TIPHIA** Latr.

- albilabris* *St. Farg.* Hyménoptères, 3, p. 556. California.  
*ephippium* *Fabr.* Entomologia Systematica, 2, p. 225. *Smith*, B. M. C. 3. N. Amer.  
*flavipennis* *St. Farg.* Hyménoptères, 3, p. 555. California.  
*hamorrhoidalis* *Fabr.* Ent. Syst. 2, p. 225. *Smith*, (Myzine) B. M. C. 3. N. Amer.  
*inornata* *Say*, Long's Second Expedition, vol. 2, p. 331. Ohio. Pennsylvania.  
*interrupta* *Say*, Long's Second Expedition, vol. 2, p. 332. Pennsylvania.  
*maculata* *Fabr.* Entomologia Systematica, 2, p. 224. Georgia.  
*namea* *Fabr.* Systema Piezatorum, p. 233. Carolina.  
*nitida* *Smith*, British Museum Catalogue, Hym. 3, p. 84. Jamaica.  
*obscura* *Fabr.* Systema Piezatorum, p. 233. Carolina.  
*serena* *Fabr.* Systema Piezatorum, p. 234. Carolina.  
*tarda* *Say*, Boston Journal of Natural History, vol. 1, p. 300. Indiana.  
*transversa* *Say*, Contributions to MacLurian Lyceum, vol. 1, p. 82. Indiana.  
*trifasciata* *Fabr.* Entomologia Systematica, 2, p. 226. St. Crucis.

**SCOLIA** Latr.

- Abbotii* *Klug*, Weber & Mohr. Beitr. 2, p. 213. N. Amer.  
*anceps* *Sauss.* Ann. Soc. Ent. France, 3 sér. 6, p. 221. Mexico.  
*ardens* *Smith*, British Museum Catalogue, Hym. 3, p. 112. Mexico.  
*atrata* *Fabr.* Ent. Syst. 2, p. 228. *Beauv.* Ins. p. 258; Hym. pl. 10, f. 3. St. Domingo.  
*aulica* *Burm.* Abh. Nat. Ges. Halle, 1, p. 33. *Smith*, Brit. Mus. Cat. 3. S. Carolina.  
*arteca* *Sauss.* Rev. et Mag. de Zool. 1857, p. 281. Mexico.  
*bifasciata* *Smith*, British Museum Catalogue, 3, p. 97. North America.  
*bimaculata* *Fabr.* Entomologia Systematica, 2, p. 231. North America.  
*confluente* *Say*, West. Quar. Rep. 2, p. 74. American Entomology, pl. 29. Arkansas.  
*dubia* *Say*, Boston Journal of Natural History, vol. 1, p. 364. United States.  
*ephippium* *Say*, Boston Journal of Natural History, vol. 1, p. 363. Mexico.  
*fervida* *Burm.* Abh. Nat. Ges. Halle, 1, p. 20. *Smith*, Brit. Mus. Cat. 3. Mexico.  
*fossulana* *Fabr.* Systema Piezatorum, p. 242. Carolina.  
*guttata* *Burm.* Abh. Nat. Ges. Halle, 1, p. 36. *Smith*, Brit. Mus. Cat. 3. Mexico.  
*hematodes* *Burm.* Abh. Nat. Ges. Halle, 1, p. 33. Mexico.  
*hematogaster* *Pert.* Delect. etc. p. 139, tab. 27, fig. 14. West Indies?  
*limosa* *Burm.* Abh. Nat. Ges. Halle, 1, p. 28. *Smith*, Brit. Mus. Cat. 3. Mexico.  
*maculata* *Guér.* Voy. Coq. Zool. 2, pt. 2, p. 255. *Smith*, Brit. Mus. Cat. 3. Georgia.  
*Mexicana* *Sauss.* Ann. Soc. Ent. France, 3 sér. 6, p. 219. Mexico.  
*Montezuma* *Sauss.* Rev. et Mag. Zool. 1857, p. 281. Mexico.  
*nobilissima* *Fabr.* Systema Piezatorum, p. 244. Carolina.  
*obscura* *Klug*, Weber & Mohr. Beitr. 1, 33. N. America.  
*octomaculata* *Say*, West. Quar. Rep. 2, p. 74. American Entomology, plate 29. Ark.  
*ornata* *Smith*, British Museum Catalogue, Hym. 3, p. 96. Georgia.  
*otomita* *Sauss.* Ann. Soc. Ent. France, 3 sér. 6, p. 223. Mexico.  
*Petitii* *Guér.* Voy. Coq. Zool. 2, pt. 2, p. 249. *Smith*, Brit. Mus. Cat. 3. Mexico.  
*4-maculata* *Fabr.* Entomologia Systematica, 2, p. 229. North America.  
*4-notata* *Fabr.* Systema Piezatorum, p. 240. Carolina.  
*radula* *Fabr.* Entomologia Systematica, 2, p. 232. North America.  
*sexinota* *Fabr.* Ent. Syst. 2, p. 236. *St. Farg.* (Plesia) Hymén. 3, 584. Carolina.  
*tricineta* *Say*, West. Quar. Rep. 2, p. 74. American Entomology, pl. 29.

*undata* Klug. Weber & Mohr. Beitr. 2, 212. *Smith*, Brit. Mus. Cat. 3. N. America.

**ELIS** Fabr.

*americana* Sauss. Revue et Magazin de Zoologie, 1857, p. 282. Mexico.

*pilipes* Sauss. Ann. Soc. Ent. France, 3 sér. 6, p. 246. Texas.

*regina* Sauss. ib. 237. Mexico.

*texensis* Sauss. ib. 224. Texas.

*tolteca* Sauss. Revue et Magazin de Zoologie, 1857, p. 282. Mexico.

**COLPA** St. Farg.

*Pennsylvanica* St. Farg. Hyménoptères, 3, p. 546. Philadelphia.

**SAPHYA** Latr.

*constrata* Say, Boston Journal of Natural History, vol. 1, p. 301. United States.

*Martini* Smith, British Museum Catalogue, Hym. 3, p. 117. Hudson's Bay.

*peptica* Harris, Catalogue of the Insects of Massachusetts, 2nd edition.

*subulata* Say, Western Quarterly Reporter, vol. 2, p. 75. United States.

Fam. MUTILLIDÆ.

**MUTILLA** Linn.

*andreniformis* Smith, British Museum Catalogue, Hym. 3, p. 55. Mexico.

*antiguensis* Fabr. Entomologia Systematica, 2, p. 367. Antigua.

*arachnoides* Smith, British Museum Catalogue, Hym. 3, p. 57. Mexico.

*Araneoides* Smith, Trans. Ent. Soc. London, 3rd ser. 1, p. 35. Panama.

*bifasciata* Swed. Nov. Act. Holm. 8, 285. *Smith*, Brit. Mus. Cat. 3, 58. New York.

*canina* Smith, British Museum Catalogue, Hym. 3, p. 58. Mexico.

*capitata* Smith, ib. 58; pl. 1, fig. 3. Mexico.

*coccinea* Linn. Systema Naturæ, 2, p. 966. *Leach*, Miscellany, 2, p. 112. N. Amer.

*combusta* Smith, British Museum Catalogue, Hym. 3, p. 59. Mexico.

*contracta* Say, Boston Journal of Natural History, vol. 1, p. 295. Arkansas.

*diadema* Fabr. Systema Piezatorum, 429. *St. Farg.* Hym. 3, p. 619. St. Domingo.

*dislocata* Harris, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.

*dorsata* Fabr. Entomologia Systematica, Suppl. p. 281. West Indies.

*dubitata* Smith, British Museum Catalogue, Hym. 3, p. 60. Florida.

*erythrina* Say, Boston Journal of Natural History, 1, p. 297. Mexico.

*exulans* Fabr. Entomologia Systematica, 2, 368. *Smith*, Brit. Mus. Cat. 3. N. Am.

*fenestrata* St. Farg. Hyménoptères, 3, p. 627. Pennsylvania.

*fragrata* Fabr. Systema Piezatorum, p. 438. Carolina.

*frigida* Smith, British Museum Catalogue, Hym. 3, p. 60. Arctic America.

*gibbosa* Say, Boston Journal of Natural History, 1, p. 298. Indiana.

*hexagona* Say, ib. 295. ib.

*militaris* Smith, British Museum Catalogue, Hym. 3, p. 61. Jamaica.

*Montesumæ* St. Farg. Hyménoptères, 3, p. 634. Mexico.

*occidentalis* Linn. Systema Naturæ, 2, p. 966. North America.

*pennsylvanica* *St. Farg.* Hyménoptères, 3, 628. Philadelphia.  
*pervaga* *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*pulehra* *Smith*, British Museum Catalogue, Hym. 3, p. 62. Mexico.  
*quadriguttata* *Say*, Western Quarterly Reporter, vol. 2, p. 74. Rocky Mountains.  
*rufa* *St. Farg.* Hyménoptères, 3, p. 631. Philadelphia.  
*serucea* *Say*, Boston Journal of Natural History, vol. 1, p. 297. Indiana.  
*senex* *Guér.* Iconographie due Règne Animal, 3, p. 429; tab. 69, fig. 4. Cuba.  
*simillima* *Smith*, British Museum Catalogue, Hym. 3, p. 62. Massachusetts.  
*undulata* *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*vagans* *Fabr.* Entomologia Systematica, Suppl. p. 282. North America.  
*versicolor* *Fabr.* Ent. Syst. 2, 371. *Smith*, Brit. Mus. Cat. 3, p. 63. Florida.  
*verticalis* *Smith*, British Museum Catalogue, Hym. 3, p. 63. Mexico.  
*vestita* *St. Farg.* Hyménoptères, 3, p. 634. Mexico.  
*vigilans* *Say*, Boston Journal of Natural History, vol. 1, p. 296. Pennsylvania.  
*xanthocerata* *Smith*, Trans. Ent. Soc. London, 3d ser. 1, p. 35. Panama.

#### MYEMOSA Latr.

*unicolor* *Say*, Long's Second Expedition, vol. 2, p. 331. North-west Territory.

#### METHOGA Latr.

*bicolor* *Say*, Boston Journal of Natural History, vol. 1, p. 299. Indiana.  
*Canadensis* *Smith*, British Museum Catalogue, Hym. 3, p. 67. Canada.  
*pascalis* *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*Poyi* *Guér.* Iconographie due Règne Animal, 3, 430. *LaSagra*, pl. 18, fig. 8. Cuba.

#### TENGYRA Latr.

*stygia* *Say*, Boston Journal of Natural History, vol. 1, p. 299. Indiana.

#### SCLERODERMA Westw.

*contracta* *Westw.* Trans. Ent. Soc. London, 2, p. 169, tab. 15, fig. 11. Carolina.  
*Mexicana* *Westw.* ib. 169. Mexico.  
*thoracica* *Westw.* ib. 167. North America.

#### LABIDUS Jurine.

*Curtisii* *Shuck.* (Tryphlopona) Ann. & Mag. Nat. Hist. 1 ser. 5, p. 265. West Indies?  
*Harrisii* *Hald.* Stansb. Salt Lake Exped. Append. p. 367, pl. 9, fig. 4. Ft. Gates.  
*Kirbyi* *Shuck.* (Tryphlopona) Ann. & Mag. Nat. Hist. 1 ser. 5, p. 265. West Indies?  
*Klugii* *Shuck.* ibid. 260. St. Vincent's.  
*Melishæmeri* *Hald.* Stansb. Salt Lake Exped. Append. 368, pl. 9, fig. 7. Ft. Gates.  
*Mexicanus* *Smith*, British Museum Catalogue, Hym. 7, p. 7. Mexico.  
*moresus* *Smith*, ibid. 6. ib.  
*Saji* *Hald.* Stansb. Salt Lake Exped. Append. p. 367, pl. 9, figs. 1-3. Ft. Gates.  
*Swainsonii* *Shuck.* Ann. Mag. Nat. Hist. 1, 5, 201. *Smith*, B. M. C. 7, p. 8. Mexico.

## Fam. FORMICIDÆ.

## FORMICA Linn.

- albipennis* Fabr. Entomologia Systematica, 2, p. 354. St. Crucis.  
*albofasciata* Smith, Trans. Entom. Soc. London, 3rd series, vol. 1, p. 29. Panama.  
*antiguensis* Fabr. Entomologia Systematica, 2, p. 357. Antigua.  
*aphidicola* Walsh, Proc. Entom. Soc. Philada. vol. 1, p. 310. Illinois.  
*arbores* Smith, Brit. Mus. Cat. 6, 44. Tr. Ent. Soc. Lond. 3 ser. 1, 29. Panama.  
*atrata* Linn. Syst. Nat. 2, 965. Sm. (Cryptocerus) Tr. Ent. Soc. Lond. 3 ser. 1, 35. Pan.  
*badia* Latr. Histoire Naturelle des Fourmis, p. 238; pl. 9, fig. 71. Carolina.  
*bilobata* Harris, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*bimaculata* Smith, British Museum Catalogue, Hym. 6, p. 50. St. Vincent's.  
*bispinosa* Oliv. Encycl. 6, 502. Sm. (Polyrhachis) Tr. Ent. Soc. Lon. 3 ser. 1, 31. Pan.  
*brunnea* Latr. Hist. Nat. Fourm. p. 169, pl. 6, fig. 35. Sm. B. M. C. 6, p. 7. Georgia.  
*Caryæ* Fitch, 1st & 2nd Reports, p. 151. New York.  
*castanea* Latr. Histoire Naturelle des Fourmis, p. 118; pl. 3, fig. 12. Carolina.  
*cephalotes* Linn. Syst. Nat. 2, 964. Sm. (Ecodoma) B. M. C. 6, 180, pl. 10, f. 21. Mex.  
*conspicua* Smith, British Museum Catalogue, Hym. 6, p. 48. Jamaica.  
*corusca* Smith, Trans. Ent. Soc. London, 3d ser. 1, p. 30. Panama.  
*dislocata* Say, Boston Journal of Natural History, vol. 1, p. 288. Indiana.  
*esuriens* Smith, British Museum Catalogue, Hym. 6, p. 54. Mexico.  
*ferruginea* Fabr. Ent. Syst. Suppl. p. 279. Smith, B. M. C. 6, 53. North America.  
*fervens* Drury, Insects, 3, p. 58; tab. 42, fig. 3. Mosquito Shore (Central America).  
*fusca* Linn. Syst. Nat. 2, 963. Kirby, Fauna Bor. Amer. 4, p. 262. North America.  
*hematoda* Linn. Syst. Nat. 2, 965. Sm. (Odontomachus) Tr. Ent. Soc. Lon. 3, 1, 31. Pan.  
*hemorrhoidalis* Latr. Histoire Naturelle des Fourmis, p. 276. St. Domingo.  
*herculeana* Linn. Systema Naturæ, 2, p. 962. North America.  
*hystrix* Latr. Hist. Nat. Fourm. p. 229. LaSagra, Hist. Cuba, p. 755. Cuba.  
*imparis* Say, Boston Journal of Natural History, vol. 1, p. 287. Indiana.  
*incisa* Smith, British Museum Catalogue, Hym. 6, p. 52. Mexico.  
*incisuralis* Harris, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*integra* Nyl. Smith, British Museum Catalogue, Hym. 6, p. 54. United States.  
*lævigata* Smith, British Museum Catalogue, Hym. 3, p. 55. California.  
*lateralis* Latr. Hist. Nat. Fourm. p. 172. Smith, B. M. C. 6, 52. North America.  
*latipes* Walsh, Proc. Entom. Soc. Philada. vol. 1, p. 311. Illinois.  
*lauta* Say, Boston Journal of Natural History, vol. 1, p. 286. Indiana.  
*melineura* Harris, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*mellea* Say, Boston Journal of Natural History, vol. 1, p. 286. Louisiana.  
*melligera* Lucas, Revue et Magazin de Zoologie, 1860, p. 275. Mexico.  
*nigra* Linn. Smith, British Museum Catalogue, Hym. 6, p. 52. North America.  
*Novæboracensis* Fitch, 1st & 2nd Reports, p. 62. New York.  
*pallide-fulva* Latr. Histoire Naturelle des Fourmis, p. 174. United States.  
*Pennsylvanica* De Geer, Hist. Ins. 3, p. 603, pl. 31, figs. 9 & 10. Pennsylvania.  
*petulca* Harris, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*pubescens* Fabr. Ent. Syst. 2, 352. Smith, Brit. Mus. Cat. 6, p. 11. Arctic America.  
*quadrata* Harris, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.

*rufa* Linn. Systema Naturæ, 2, p. 962. North America.  
*saccharivora* Linn. Systema Naturæ, 2, p. 963. Smith, B. M. C. 6, 48. West Indies.  
*sanguinea* Latr. Hist. Nat. Fourm. 150, pl. 5, f. 29. Sm. B. M. C. 6, 4. Arctic Amer.  
*semipunctata* Kirby, Fauna Boreali-Americana, 4, p. 262. North America.  
*sericeiventris* Guér. Voy. Coq. Zool. 2, 205. Smith, B. M. C. 6, 46. Mexico.  
*sessilis* Say, Boston Journal of Natural History, vol. 1, p. 287. Indiana.  
*sexdentata* Latr. Hist. Nat. Fourm. 228. Sm. (Ecodoma) B. M. C. 6, 183. St. Vin.  
*sexguttata* Fabr. Entomologia Systematica, 2, 354. St. Crucis.  
*simillima* Smith, Trans. Ent. Soc. London, 3rd ser. 1, p. 30. Panama.  
*striata* Smith, ib ib 30. Panama.  
*subsericea* Say, Boston Journal of Natural History, vol. 1, p. 289. Indiana.  
*triangularis* Say, Boston Journal of Natural History, vol. 1, p. 288. Indiana.  
*umbrata* Nyl. Addit. Mon. Form. Bor. Eur. 1049. Sm. B. M. C. 6, 52. N. America.  
*unispinosa* Fabr. Ent. Syst. 2, 359. Latr. Fourm. p. 192, pl. 8, fig. 53. Gaudeloupe.  
*vagans* Oliv. Encycl. 6, 501. Smith, (Eciton) B. M. C. 6, p. 151. Mexico.

#### MYRMECOCYSTUS Wesm.

*Mexicanus* Wesm. Bull. Acad. Brux. 1838, p. 770. Mexico.

#### TAPINOMA Först.

*instabilis* Smith, Trans. Ent. Soc. London, 3rd ser. 1, p. 31. Panama.

#### ODONTOMACHUS Latr.

*clarus* Roger, Berliner Entomol. Zeitschrift, 1861, p. 26. Texas.  
*insularis* Guér. Iconographie des Règne Animal, 3, p. 423. Cuba.

#### PONERA Latr.

*bicolor* Guér. Iconographie des Règne Animal, 3, p. 424. Mexico.  
*ferruginea* Smith, British Museum Catalogue, Hym. 6, p. 100. Mexico.  
*pedunculata* Smith, B. M. C. 6, p. 96. Tr. Ent. Soc. Lond. 3 ser. 1, p. 31. Panama.  
*tornata* Roger, Berliner Entomol. Zeitschrift, 1861, p. 15. Mexico.

#### LEPTOGENYS Roger.

*falcata* Roger, Berliner Entomol. Zeitschrift, 1861, p. 42. Cuba.

#### ECTATONMA Smith.

*scabrosa* Smith, Trans. Ent. Soc. London, 3rd ser. 1, p. 31. Panama.

#### PACHYCONDYLA Smith.

*Montesumia* Smith, British Museum Catalogue, Hym. 6, p. 108. Mexico.  
*punctata* Smith, British Museum Catalogue, Hym. 6, p. 108. St. Domingo.

#### TYPHLOPONE Westw.

*Dahlbomii* Westw. Annals & Magazine of Natural History, 6, p. 88. West Indies?  
*fulva* Westw. ib ib 87. ib?  
*Shuckardi* Westw. ib ib 88. ib?  
*pallipes* Hald. Proceedings Academy Natural Sciences, Phila. 2, p. 54. Penn.



**MYRMICA** Latr.

- barbata* Smith, British Museum Catalogue, Hym. 6, p. 130. Mexico.  
*bicarinata* Nyl. Addit. Mon. Form. Bor. Eur. 1061. Sm. B. M. C. 6, 130. California.  
*brevipennis* Smith, British Museum Catalogue, Hym. 6, p. 130. Georgia.  
*corrugata* Say, Boston Journal of Natural History, vol. 1, p. 291. Indiana.  
*dimidiata* Say, Boston Journal of Natural History, vol. 1, p. 293.  
*glaber* Smith, Trans. Ent. Soc. London, 3rd ser. 1, p. 34. Panama.  
*inflecta* Say, Boston Journal of Natural History, vol. 1, p. 292. Indiana.  
*lineolata* Say, Boston Journal of Natural History, vol. 1, p. 290. United States.  
*minuta* Say, Boston Journal of Natural History, vol. 1, p. 294. Indiana.  
*molesta* Say, Boston Journal of Natural History, vol. 1, p. 293. Indiana.  
*opposita* Say, Boston Journal of Natural History, vol. 1, p. 292.  
*polita* Smith, Trans. Entom. Soc. London, 3rd ser. 1, p. 34. Panama.  
*reticulata* Smith, ib. 33. ib.  
*russula* Nyl. Smith, British Museum Catalogue, Hym. 6, p. 132. St. Domingo.  
*Sallei* Guér. Revue et Magasin de Zoologie, 1852, p. 76, pl. 3. St. Domingo.  
*transversa* Smith, British Museum Catalogue, Hym. 6, p. 129. North America.

**STIGMATOMMA** Roger.

- serratum* Roger, Berliner Entomol. Zeitschrift, 1859, p. 251. Baltimore.

**CREMATOGASTER** Lund.

- Monterumia* Smith, British Museum Catalogue, Hym. 6, p. 139. Mexico.

**MYRMEX** Guér.

- Perbosci* Guér. Iconographie du Règne Animal, 3, p. 428. Bay of Campeche.

**PSEUDOMYRMA** Guér.

- bicolor* Guér. Icon. 427. Smith, Trans. Ent. Soc. London, 3rd ser. 1, p. 32. Panama.  
*cephalica* Smith, ibid. 32. ib.  
*flavidula* Smith, ibid. 32. ib.  
*modesta* Smith, ibid. 32. ib.  
*pallida* Smith, ibid. new ser. 3, p. 9. Florida.

**ATTA** St. Farg.

- elypeata* Smith, British Museum Catalogue, Hym. 6, p. 169. Mexico.  
*crudelis* Smith, ibid. 170. Georgia.  
*insularis* Guér. Iconographie du Règne Animal, 3, 422. LaSagra, Cuba, t. 18, f. 6. Cuba.

**ECODOMA** Latr.

- Mexicana* Smith, British Museum Catalogue, Hym. 6, p. 185, pl. 10, fig. 20. Mexico.

**CRYPTOCERUS** Latr.

- araneolus* Smith, Annals of Natural History, 2nd series, 11, p. 336. St. Vincent's.  
*argentatus* Smith, Tr. Ent. Soc. Lond. 2 ser. 2, 218. Brit. Mus. Cat. 6, 189. Mexico.  
*bimaculatus* Smith, Trans. Ent. Soc. London, 3rd ser. 1, p. 411. Mexico.  
*minutus* Fabr. Syst. Piez. p. 425. Smith, Trans. Ent. Soc. Lond. 3 ser. 1, 409. Panama.

## Fam. EUCMENIDÆ.

**XETHEUS** Fabr.

- albepletus* Smith, British Museum Catalogue, Hym. 5, p. 15. St. Domingo.  
*astecus* Sauss. Revue et Magasin de Zoologie, 1857, p. 270. Mexico.  
*bicolor* Sauss. Monog. des Guêpes Sol. p. 17. Florida.  
*chicoteneatl* Sauss. Revue et Magasin de Zoologie, 1857, p. 271. Mexico.  
*chrysopterus* Sauss. Monog. des Guêpes Sol. p. 13, pl. 8, fig. 7. Mexico?  
*Gantemotain* Sauss. Revue et Magasin de Zoologie, 1857, p. 270. Mexico.  
*gracilis* Smith, British Museum Catalogue, Hym. 5, p. 17. Mexico.  
*Jurinei* Sauss. Monog. des Guêpes Sol. p. 15. St. Domingo?  
*lævinodus* Smith, British Museum Catalogue, Hym. 5, p. 17. Mexico.  
*Matricatsin* Sauss. Revue et Magasin de Zoologie, 1857, p. 271. Mexico.  
*montesuma* Sauss.                      ibid.                      270.       ib.  
*Poyi* Sauss.                            ibid.                      270.       Cuba.  
*spinosus* Sauss.                    ibid.                      270.       Mexico.  
*spinipes* Say, (Lethus) Boston Journal of Natural History, vol. 1, p. 387. Indiana.  
*tubulifer* Westw. Sauss. Monog. des Guêpes Sol. p. 18. Mexico.  
*variegatus* Sauss.                ibid.                    13.       ib?  
*Westwoodi* Sauss.                ibid.                    16; Suppl. pl. 6, fig. 2. Mexico.

**DISCELIUS** Latr.

- pulchellus* Sauss. Monog. des Guêpes Sol. Suppl. p. 127. Mexico. Jamaica.

**EUMENES** Latr.

- agilis* Sauss. Monog. des Guêpes Sol. p. 42. Smith, Brit. Mus. Cat. North America.  
*Americana* Sauss.                ibid.                    39.       Mexico.  
*anormis* Say, Long's Second Expedition, vol. 2, p. 346. Arkansa.  
*astecus* Sauss. Revue et Magasin de Zoologie, 1857, p. 272. Mexico.  
*colona* Sauss. Monog. des Guêpes Sol. p. 70. Jamaica.  
*compressus* Sauss.            ibid.                Sup. 142, t. 7, f. 5. Smith, B. M. C. 5. N. Amer?  
*fervens* Sauss.                ibid.                40.       New Orleans. Carolina.  
*fraterna* Say, Long's Second Exped. 2, 344. Sauss. Guép. Sol. pl. 11, f. 8. U. States-  
*globulosus* Sauss. Monog. des Guêpes Sol. Suppl. p. 139. North America.  
*infundibuliformis* Fabr. Syst. Piez. p. 288. Smith, Brit. Mus. Cat. 5, 39. Mexico.  
*Iturbide* Sauss. Revue et Magasin de Zoologie, 1857, p. 271. Mexico.  
*macrops* Sauss. Monog. des Guêpes Sol. p. 41. North Carolina.  
*mexicanus* Sauss. Revue et Magasin de Zoologie, 1857, p. 272. Mexico.  
*minuta* Fabr. Syst. Piez. p. 291. Sauss. Mon. Guép. Sol. p. 39. North America.  
*ornatus* Sauss. Monog. des Guêpes Sol. Suppl. p. 147; pl. 8, fig. 3. Antilles.  
*pennsylvanica* Hald. Proceedings Academy Natural Sciences, Phila. 6, p. 365. Penn.  
*pieta* Smith, British Museum Catalogue, Hym. 5, p. 32. St. Domingo.  
*placidus* Smith, Trans. Ent. Soc. London, 3rd ser. 1, p. 37. Panama.  
*regulus* Sauss. Revue et Magasin de Zoologie, 1857, p. 272. Mexico.  
*rufinoda* Latr. Sauss. (Zethus) Mon. Guêpes Sol. Suppl. 118, pl. 6, fig. 3. W. Indies.  
*Smithii* Sauss. Monog. des Guêpes Sol. p. 43, tab. 10, fig. 1. Florida.  
*substricta* Hald. Proceed. Acad. Nat. Sci. Philada. 2, p. 64. (Pennsylvania.)  
*verticalis* Say, Long's Second Expedition, vol. 2, p. 346. Pennsylvania.

**PACHYMERES** Sauss.

- obscura* Smith, British Museum Catalogue, Hym. 5, p. 34. Mexico.  
*santanna* Sauss. Revue et Magasin de Zoologie, 1857, p. 252. Mexico.  
*ventricosa* Sauss. Monog. des Guêpes Sol. p. 77, pl. 12, fig. 7. South Carolina.

**MONTEZUMIA** Sauss.

- cortesia* Sauss. Monog. des Guêpes Sol. p. 92; pl. 15, fig. 2. Mexico.  
*hausteca* Sauss. Revue et Magasin de Zoologie, 1857, p. 271. Mexico.  
*Mexicana* Sauss. Monog. des Guêpes Sol. p. 94. Mexico.  
*rufipes* Sauss. Mon. Guép. Sol. 89, t. 15, f. 1. *Sw. Tr. Ent. Soc. Lon.* 3, 1, 37. Panama.

**MONOBIA** Sauss.

- egregia* Sauss. Mon. Guép. Sol. Sup. 168, t. 9, f. 5. *Smith, B. M. C. 5.* West Indies.

**RYGCHIUM** Spinola.

- balteatum* Say, Boston Journal of Natural History, vol. 1, p. 383. Indiana.  
*louisianum* Sauss. Monog. des Guêpes Sol. p. 106, pl. 13, fig. 9. New Orleans.

**ODYNERUS** Latr.

- acolithus* Sauss. Revue et Magasin de Zoologie, 1857, p. 280. Mexico.  
*adiabatus* Sauss. Monog. des Guêpes Sol. p. 138. Carolina.  
*albomarginatus* Sauss. *ibid.* Suppl. p. 195. Hudson's Bay.  
*albophaleratus* Sauss. *ibid.* 217. Arctic America.  
*Alvarado* Sauss. Revue et Magasin de Zoologie, 1857, p. 276. Mexico.  
*ammonia* Sauss. Monog. des Guêpes Sol. p. 144. Carolina.  
*annulatus* Say, Long's Second Expedition, vol. 2, p. 348. North-west Territory.  
*Arista* Sauss. (*Ancistrocerus*) Rev. et Mag. Zool. 1857, p. 274. Mexico.  
*atricornis* Harris, Catalogue of the Insects of Massachusetts, 2nd edition.  
*artecus* Sauss. Revue et Magasin de Zoologie, 1857, p. 275. Mexico.  
*auratus* Sauss. *ibid.* 1858, p. 166. *ib.*  
*Bairdi* Sauss. *ibid.* 169. Texas.  
*Bellone* St. Farg. Hyménoptères, 2, p. 660. Sauss. Guép. Sol. pl. 16, f. 10. Carolina.  
*birenimaculatus* Sauss. Monog. des Guêpes Soc. p. 135. Carolina.  
*Bosci* St. Farg. Hyménoptères, 2, p. 637. Sauss. Guép. Sol. pl. 17, f. 10. Carolina.  
*brachygaster* Sauss. Guép. Sol. p. 173. *LaSagra*, Hist. Cuba, pl. 19, fig. 6. Cuba.  
*Bravo* Sauss. (*Ancistrocerus*) Revue et Magasin de Zoologie, 1857, p. 274. Mexico.  
*Buen[ensis]* Sauss. Guép. Sol. p. 185. *LaSagra*, Hist. Cuba, pl. 13, fig. 3. Cuba.  
*Bustamente* Sauss. (*Ancistrocerus*) Rev. et Mag. de Zool. 1857, p. 273. Mexico.  
*campestris* Sauss. Monog. des Guêpes Sol. p. 137. Carolina.  
*Canadensis* Sauss. *ibid.* Suppl. p. 196. Canada.  
*capra* Sauss. (*Ancistrocerus*) Rev. et Mag. Zool. 1857, 273. United States. Canada.  
*castigatus* Sauss. Monog. des Guêpes Sol. p. 178. Carolina.  
*Catskill[ensis]* Sauss. *ibid.* 136, pl. 16, fig. 8. North America.  
*Catepetlensis* Sauss. *ibid.* Suppl. 255. Mexico.  
*chichimecus* Sauss. Revue et Magasin de Zoologie, 1857, p. 280. Mexico.  
*cervus* Sauss. *ibid.* 1858, p. 165. Canada.  
*conformis* Sauss. Monog. des Guêpes Sol. Suppl. p. 219. New Orleans.  
*cubensis* Sauss. *ibid.* 181, pl. 18, fig. 8. Cuba.  
*eristatus* Sauss. *ibid.* Suppl. p. 196. North America?

- crypticus* Say, Western Quarterly Reporter, vol. 2, p. 81. Arkansa.  
*Dodalus Harris*, Catalogue of the Insects of Massachusetts, 2nd edition.  
*debilis Harris*, Catalogue of the Insects of Massachusetts, 2nd edition.  
*diabolicus Sauss.* Mon. Guép. Sol. p. 171. Smith, Brit. Mus. Cat. 5. North America.  
*distans Harris*, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*elegans Guér.* Iconographie du Règne Animal, 3, p. 446, pl. 70, fig. 5. Cuba.  
*Eryo St. Farg.* Hyménoptères, 2, p. 648. Cuba.  
*Erynnis St. Farg.* ib. 645. Sauss. Mon. Guép. Sol. p. 178. Carolina.  
*farias Sauss.* (Ancistrocerus) Rev. et Mag. Zool. 1857, 274. Mexico.  
*figulus Sauss.* Monog. des Guêpes Sol. Suppl. p. 247. Gaudeloupe.  
*flavicornis Harris*, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*flavopictus Sauss.* Rev. et Mag. Zool. 1857, p. 276. United States.  
*foraminatus Sauss.* Monog. des Guêpes Sol. p. 180. Carolina.  
*fulvipes Sauss.* ibid. Suppl. 205. Sm. B. M. C. 5, 81. Carolina.  
*fuscipes Sauss.* ibid. 143. North America.  
*Guadalupe Sauss.* ibid. 182. Guadeloupe.  
*Gusmani Sauss.* (Ancistrocerus) Rev. et Mag. Zool. 1857, p. 275. Mexico.  
*Guerrero Sauss.* ibid. 277. ib.  
*haustecus Sauss.* ibid. 278. ib.  
*Hidalgo Sauss.* ibid. 275. ib.  
*histris St. Farg.* Hyménoptères, 2, p. 638. Carolina.  
*Huro Sauss.* Monog. des Guêpes Sol. Suppl. p. 297. United States.  
*incommodus Sauss.* ib. p. 143. LaSagra, Hist. Cuba. Cuba.  
*Iturbide Sauss.* Revue et Magasin de Zoologie, 1857, p. 276. Mexico.  
*leucomelas Sauss.* Monog. des Guêpes Sol. Suppl. p. 255. New York.  
*luctuosus Sauss.* ibid. 220. South Carolina.  
*maya Sauss.* Revue et Magasin de Zoologie, 1857, p. 279. Mexico.  
*megura St. Farg.* Hymén. 2, 636. Sauss. Guép. Sol. pl. 17, f. 11. Carolina.  
*Mohicanus Sauss.* Monog. des Guêpes Sol. Suppl. p. 297. North America.  
*Morelios Sauss.* Revue et Magasin de Zoologie, 1857, p. 276. Mexico.  
*mystecus Sauss.* ibid. 279. ib.  
*nasidens Latr. Sauss.* ibid. 1858, p. 165. ib.  
*occidentalis Sauss.* ibid. 1857, p. 274. Sonora.  
*otomitus Sauss.* ibid. 278. Mexico.  
*oculatus Say*, Boston Journal of Natural History, vol. 1, p. 385. Ohio.  
*Parredes Sauss.* (Ancistrocerus) Rev. et Mag. de Zool. 1857, p. 273. Mexico.  
*perennis Sauss.* ibid. 277. United States.  
*Peyroti Sauss.* ibid. 278. Mexico.  
*Pennsylvanicus Sauss.* Monog. des Guêpes Sol. Suppl. p. 257. Pennsylvania.  
*persecutor Sauss.* ibid. 256, pl. 14, fig. 1. U. States.  
*pertinax Sauss.* ibid. 216. New York.  
*pedestris Sauss.* ibid. 206. Sm. B. M. C. 5, 82. N. A.  
*Philadelphie Sauss.* (Protodynerus) Rev. et Mag. de Zool. 1857, p. 272. Penn.  
*pleuriscincta Harris*, Catalogue of the Insects of Massachusetts, 2nd edition.  
*productus Smith*, Trans. Ent. Soc. London, 3rd ser. 1, p. 37. Panama.  
*proximus Sauss.* (Ancistrocerus) Rev. et Mag. de Zool. 1857, p. 274. New York.  
*pruinosis Smith*, British Museum Catalogue, Hym. 5, p. 79. St. Domingo.  
*quadrisectus Say*, Boston Journal of Natural History, vol. 1, p. 385. United States.

- rugosus* Sauss. Monog. des Guêpes Sol. p. 179. North America.  
*secularis* Sauss. ibid. 142. Carolina.  
*Santa Anna* Sauss. (Ancistrocerus) Revue et Magazin de Zoologie, 1857, 273. Mex.  
*similis* Smith, British Museum Catalogue, Hym. 5, p. 80. Mexico.  
*simplidicornis* Sauss. Mon. Guêpes Sol. Suppl. 253. *LaSagra*, pl. 19, fig. 5. Cuba.  
*Spinolæ* Sauss. ibid. 216. Philadelphia.  
*sobrinus* Sauss. Revue et Magazin de Zoologie, 1857, p. 278. Mexico.  
*sulphureus* Sauss. ibid. 1858, p. 170. California.  
*sumichrasti* Sauss. ibid. 1857, p. 275. Mexico.  
*symmorphus* Sauss. Monog. Guêpes Sol. Suppl. 246. Florida.  
*Sylveiræ* Sauss. ibid. p. 217, pl. 10, fig. 8. *Sm.* B. M. C. 5. Arctic Amer.  
*tapaneus* Sauss. Revue et Magazin de Zoologie, 1857, p. 280. Mexico.  
*tigris* Sauss. (Ancistrocerus) ibid. 273. Pennsylvania.  
*Tisiphone* *St. Farg.* Hym. 2, 646. Sauss. Mon. Guép. Sol. p. 183. Carolina?  
*toltecus* Sauss. Revue et Magazin de Zoologie, 1857, p. 277. Mexico.  
*totonacus* Sauss. ibid. 278. ib.  
*tuberculocephalus* Sauss. Monog. des Guêpes Sol. p. 139, pl. 16, fig. 9. Mexico.  
*Tacubayæ* Sauss. Revue et Magazin de Zoologie, 1857, p. 279. Mexico.  
*unifasciatus* Sauss. Monog. des Guêpes Sol. p. 138. Carolina.  
*vagus* Sauss. Revue et Magazin de Zoologie, 1857, p. 277. United States.  
*Victoria* Sauss. ibid. 279. Mexico.

#### LEPTOCHILUS Sauss.

- denticulatus* Sauss. Revue et Magazin de Zoologie, 1855, p. 373. Mexico.  
*fallax* Sauss. Monog. des Guêpes Sol. 234, pl. 20, f. 6. *Sm.* Brit. Mus. Cat. 5. N. Am.  
*ornatus* Sauss. ibid. 236, pl. 20, fig. 4. Carolina.

#### PTEROCHILUS Klug.

- 5-fasciatus* Say, Long's Second Expedition, vol. 2, p. 347. North-west Territory.

### Fam. VESPIDÆ.

#### POLISTES Latr.

- apachus* Sauss. Ann. Soc. Ent. France, 3 sér. 5, p. 314. New Mexico. Sonora.  
*areata* Say, Boston Journal of Natural History, vol. 1, p. 388. Mexico.  
*aurifer* Sauss. Monog. des Guêpes Soc. p. 78. California.  
*comachus* Sauss. Ann. Soc. Ent. Soc. France, 3 sér. 5, p. 314. New Mexico.  
*Cubensis* *St. Farg.* Hyménoptères, 1, p. 526. Cuba.  
*exilis* Sauss. Monog. des Guêpes Soc. p. 85, tab. 12, fig. 5. North America.  
*instabilis* Sauss. ibid. 91, tab. 10, fig. 2, & tab. 11, fig. 1. Mexico.  
*major* Beauv. Ins. Afr. et Amér. p. 206, Hym. tab. 8, fig. 1. St. Domingo.  
*media* Beauv. ibid. 207, ib. 2. ib.  
*minor* Beauv. ibid. 207, ib. 3. ib.  
*mellifica* Say, Boston Journal of Natural History, vol. 1, p. 390. Mexico.  
*metrica* Say, ib. p. 388. Sauss. Guép. Soc. pl. 7, f. 4. U. States.  
*modestus* Smith, Trans. Ent. Soc. London, 3rd ser. 1, p. 38. Panama.  
*oculatus* Smith, British Museum Catalogue, Hym. 5, p. 111. Mexico.

*pallipes* *St. Farg.* Hym, 1, p. 530. *Sauss.* Mon. Guép. Soc. t. 12, f. 1-4. N. America.  
*parvula* *Fabr.* Syst. Piez. p. 280. *Sauss.* (Polybia) Guép. Soc. p. 196. Mexico.  
*Peyi* *St. Farg.* Hyménoptères, 1, p. 532. Cuba.  
*promethea* *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition.  
*rubiginosa* *St. Farg.* Hyménoptères, 1, p. 524. Philadelphia.  
*valida* *Scy*, Boston Journal of Natural History, vol. 1. p. 389. Mexico.

#### VESPA Linn.

*Americana* *Fabr.* Ent. Syst. 2, 276. *Sauss.* (Polistes) Guép. Soc. 93, t. 11, f. 4 & 5. W. I.  
*annularis* *Linn.* Syst. Nat. 2, 950. *Sauss.* ib. pl. 8, fig. 4. N. Amer.  
*apicalis* *Fabr.* Syst. Piez. p. 260. *Sauss.* (Chartergus) Guép. Soc. p. 217. Mexico.  
*arenaria* *Fabr.* Ent. Syst. 2, 258. *Sauss.* Monog. Guépes Soc. p. 134. N. America.  
*borealis* *Kirby*, Fauna Boreali-Americana, 4, p. 264. North America.  
*Canadensis* *Linn.* Syst. Nat. 2, p. 952. *Sauss.* (Polistes) Guép. Soc. t. 9, f. 1. N. Am.  
*carnifex* *Fabr.* Ent. Syst. 2, p. 260. *Sauss.* ib. 90, t. 10, f. 5. W. Ind.  
*carolina* *Linn.* Systema Naturæ, 2, 948. (Carolina.)  
*chartaria* *Oliv.* Encycl. 6, 687. *Smith*, British Museum Catalogue, 5, 134. Mexico.  
*cincta* *Drury*, Insects, vol. 1, p. 98; tab. 43, fig. 6. Virginia.  
*communis* *Sauss.* Entomologische Zeitung, Stettin, 1857, p. 117. North America.  
*consobrina* *Sauss.* Monog. des Guépes Soc. p. 141. Newfoundland.  
*cuneata* *Fabr.* Systema Piezatorum, p. 258. Carolina.  
*diabolica* *Sauss.* Monog. des Guépes Soc. p. 138. Philadelphia.  
*dorsalis* *Fabr.* Entomologia Systematica, 2, p. 265. North America.  
*flavipes* *Fabr.* Ent. Syst. 2, 273. *Sauss.* (Odynerus) Guép. Sol. 142, t. 16, f. 3. Carolina.  
*fraterna* *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition. Mass.  
*germanica* *Fabr.* Ent. Syst. 2, 256. *Sauss.* Guép. Soc. 117, pl. 14, f. 4. N. America.  
*inequalis* *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition.  
*infernalis* *Sauss.* Monog. des Guépes Soc. p. 139. Philadelphia.  
*Jamaicensis* *Drury*, Insects, vol. 1, p. 104, pl. 44, fig. 4. Jamaica.  
*lineata* *Fabr.* Ent. Syst. 2, 259. *Sauss.* (Polistes) Guép. Soc. 95, pl. 11, fig. 6. W. I.  
*maculata* *Linn.* Systema Naturæ, 2, p. 948. North America.  
*maculata* *Drury*, Insects, vol. 2, p. 74, pl. 39, fig. 2. Jamaica.  
*maculifrons* *Harris*, Catalogue of the Insects of Massachusetts, 2nd edition.  
*marginata* *Kirby*, Fauna Boreali-Americana, 4, p. 265, t. 6, f. 2. North America.  
*Nestor* *Fabr.* Entomologia Systematica, Suppl. p. 262. North America.  
*nigripennis* *De Geer*, Mém. Ins. 3, p. 582, pl. 29, fig. 10. Pennsylvania.  
*pennsylvanica* *Sauss.* Entomologische Zeitung, Stettin, 1857, p. 117. North America.  
*phthisica* *Fabr.* Ent. Syst. 2, p. 281. *Sauss.* (Polybia) Guép. Soc. 186. St. Thomas.  
*quadridens* *Linn.* Syst. Nat. 2, 951. *Sauss.* (Monobia) ib. Sol. t. 16, f. 1. N. Amer.  
*serripes* *Fabr.* Entomologia Systematica, 2, p. 266. North America.  
*signata* *Linn.* Syst. Nat. 2, 952. *St. Farg.* (Monedula) Hymén. 3, 283. Cuba.  
*squamosus* *Drury*, Insects, vol. 1, p. 98, pl. 43, fig. 7. New York.  
*sulphurea* *Sauss.* Monog. des Guépes Soc. p. 137. California.  
*tibialis* *Oliv.* Encyclopédie Méthodique, Ins. 6, p. 690. Georgia.  
*tricolor* *Fabr.* Entomologia Systematica, 2, 271. Jamaica.  
*undinata* *Fabr.* Syst. Piez. p. 259. *St. Farg.* Hyménoptères, 2, p. 619. N. America.  
*versicolor* *Oliv.* Encycl. 6, 692. *Smith*, Tr. Ent. Soc. Lon. 3rd ser. 1, 38. Panama.  
*vidua* *Sauss.* Monog. des Guépes Soc. p. 136. Carolina.  
*vulgaris* *Linn.* Syst. Nat. 2, 949. *Sauss.* Guépes Soc. pl. 14, fig. 3. North America.

**SYNCEA** Sauss.

*asurea* Sauss. Ann. Soc. Ent. France, 2 sér. 10, p. 554. Guép. Soc. p. 160. Mexico.

**POLYBIA** St. Farg.

- Cubensis* Sauss. Monog. des Guêpes Soc. p. 202, tab. 25, figs. 5 & 6. Cuba.  
*fasciata* Sauss. Guép. Soc. p. 182. Smith, Tr. Ent. Soc. Lon. 3rd ser. 1, 39. Panama.  
*fastidiosuscula* Sauss. 197. Smith, ibid. 39. ib.  
*fuscoornis* Sauss. 210. Smith, ibid. 39. ib.  
*flavitaris* Sauss. Monog. des Guêpes Soc. p. 199. Smith, B. M. C. 5, pl. 5, f. 1. Cala.  
*laboriosa* Sauss. ibid. 171. Mexico.  
*Mexicana* Sauss. ibid. 203, pl. 26, fig. 6. Mexico.  
*metathoracica* Sauss. 198, pl. 25, f. 1. Sm. Tr. Ent. Soc. Lon. 3, 1, 39. Panama.  
*pediculate* Sauss. 205. pl. 26, f. 7. Sm. ibid. 39. ib.  
*pallidi-pectus* Smith, British Museum Catalogue, Hym. 5, p. 128. Mexico.  
*simillima* Smith, Trans. Entom. Soc. London, 3rd ser. 1, p. 39. Panama.  
*xanthopus* Sauss. Monog. des Guêpes Soc. p. 190. Mexico.

**TATUA** Sauss.

*Guerini* Sauss. Monog. des Guêpes Soc. p. 215. Mexico.

**NECTARINIA** Shuck.

- analis* Shuck. Smith, Tran. Ent. Soc. London, 3rd ser. 1, p. 39. Panama.  
*Augusti* Sauss. Monog. des Guêpes Soc. p. 233. Smith, Brit. Mus. Cat. 5. Mexico.  
*asteca* Sauss. Revue et Magasin de Zoologie, 1857, p. 280. Mexico.

Fam. **ANDRENIDÆ.****COLLETES** Latr.

- inæqualis* Say, Boston Journal of Natural History, vol. 1, p. 391. Indiana.  
*mandibularis* Smith, British Museum Catalogue, Hym. 1, p. 5. Georgia.  
*thoracica* Smith, ibid. 5. Florida.

**PROBOPIS** Fabr.

- affinis* Smith, British Museum Catalogue, 1, p. 24. North America.  
*basalis* Smith, ibid. 23. Hudson's Bay.  
*confuens* Smith, ibid. 24. Florida.  
*elliptica* Kirby, Fauna Boreali-Americana, 4, p. 266. North America.

**SPHECODES** Latr.

- confertus* Say, Boston Journal of Natural History, vol. 1, p. 392. Indiana.  
*dichroa* Harris. Smith, British Museum Catalogue, Hym. 1, p. 38. U. States.

**HALICTUS** Latr.

- capitosus* Smith, British Museum Catalogue, Hym. 1, p. 67. Georgia. Florida.  
*confusus* Smith, ibid. 70. Hudson's Bay.

- coriaceus* Smith, British Museum Catalogue, Hym. 1, p. 70. Nova Scotia.  
*crassicornis* Kirby, Fauna Boreali-Americana, 4, p. 267. North America.  
*creberrimus* Smith, British Museum Catalogue, Hym. 1, p. 72. North America.  
*dimidiatus* St. Farg. Hyménoptères, 2, 283. North America?  
*discus* Smith, British Museum Catalogue, Hym. 1, p. 70. North America.  
*farinosus* Smith, ibid. 69. California.  
*fulvipes* Smith, ibid. 67. Florida.  
*fuscipennis* Smith, ibid. 67. ib.  
*gemmatus* Smith, ibid. 65. Jamaica.  
*Hesperus* Smith, Trans. Ent. Soc. London, 3d ser. 1, p. 40. Panama.  
*imitatus* Smith, British Museum Catalogue, Hym. 1, p. 71. North America.  
*inconspicuus* Smith, ibid. 73. ib.  
*lævis* Smith, ibid. 72. Arctic America.  
*labrosus* Say, Boston Journal of Natural History, vol. 1, p. 394. Mexico.  
*Lerouxii* St. Farg. Hyménoptères, 2, p. 272. North America.  
*ligatus* Say, Boston Journal of Natural History, vol. 1, p. 396. United States.  
*nymphalis* Smith, British Museum Catalogue, Hym. 1, p. 68. Florida.  
*parallelus* Say, Boston Journal of Natural History, 1, p. 397. Indiana.  
*pectoralis* Smith, British Museum Catalogue, Hym. 1, p. 68. Florida.  
*pilosus* Smith, ibid. 71. North America.  
*Poyi* St. Farg. Hyménoptères, 2, p. 271. Cuba.  
*pterus* Say, Boston Journal of Natural History, vol. 1, p. 395. United States.  
*radiatus* Say, ibid. 394. Indiana.  
*similis* Smith, British Museum Catalogue, Hym. 1, p. 69. Hudson's Bay.  
*subquadratus* Smith, ibid. 72. New York.  
*splendens* St. Farg. Hyménoptères, 2, p. 283. Carolina.  
*tricolor* St. Farg. ibid. 289. North America.  
*Zephyrus* Smith, British Museum Catalogue, Hym. 1, p. 68. Florida.

#### HYLÆUS Fabr.

- abdominalis* Panz. Smith, (Halictus) Brit. Mus. Cat. Hym. 1, p. 45. Nova Scotia.  
*flavipes* Fabr. Ent. Syst. 2, p. 305. Smith, (Halictus) Brit. Mus. Cat. 1, 48. Ohio.  
*modestus* Say, Boston Journal of Natural History, vol. 1, p. 392.

#### AUGOCHLORA Smith.

- aurata* Smith, British Museum Catalogue, Hym. 1, p. 82. Florida.  
*cuprea* Smith, ibid. 79. North America.  
*fervida* Smith, ibid. 81. ib.  
*festiva* Smith, ibid. 80. Florida.  
*fulgida* Smith, ibid. 79. ib.  
*gratiosa* Smith, ibid. 80. Georgia.  
*lucidula* Smith, ibid. 81. North America.  
*Regina* Smith, ibid. 77. Jamaica.  
*splendida* Smith, ibid. 79. Mexico.  
*sumptuosa* Smith, ibid. 82. North America.  
*viridula* Smith, ibid. 81. ib.

#### OXYSTOGLOSSA Smith.

- decorata* Smith, British Museum Catalogue, Hym. 1, p. 83. Jamaica.



**AGAPOSTEMON** Guérin.

<i>seruginosus</i> Smith, British Museum Catalogue, 1, p. 86.	Florida.
<i>nasutus</i> Smith,	ibid. 87. Mexico.
<i>pulchra</i> Smith,	ibid. 87. California.
<i>rhopalocera</i> Smith,	ibid. 87. Mexico.

**NOMIA** Latr.

*heteropoda* Say, Long's Second Expedition, vol. 2, p. 349. Arkansa. Maryland.

**ANDRENA** Fabr.

<i>algida</i> Smith, British Museum Catalogue, Hym. 1, p. 116.	Hudson's Bay.
<i>aliena</i> Smith,	ibid. 113. Florida.
<i>bicolor</i> Fabr. Ent. Syst. 2, 310. Smith, Brit. Mus. Cat. 1, 94.	Nova Scotia.
<i>bidentata</i> Fabr. ib. 313. (Anthophora) Syst. Piez. p. 381.	North America.
<i>clypeata</i> Smith, British Museum Catalogue, Hym. 1, p. 115.	Florida.
<i>despensa</i> Smith,	ibid. 114. Nova Scotia.
<i>femoralis</i> Guér. Iconographie du Règne Animal, 3, p. 447; tab. 73, fig. 1.	Cuba.
<i>fimbriata</i> Smith, British Museum Catalogue, Hym. 1, p. 116.	United States.
<i>fragilis</i> Smith,	ibid. 115. United States.
<i>frigida</i> Smith,	ibid. 115. Nova Scotia.
<i>fulvipennis</i> Smith,	ibid. 117. Florida.
<i>hilaris</i> Smith,	ibid. 112. Georgia.
<i>hirticeps</i> Smith,	ibid. 116. Hudson's Bay.
<i>impuncta</i> Kirby, Fauna Boreali-Americana, 4, p. 268.	North America.
<i>integra</i> Smith, British Museum Catalogue, Hym. 1, p. 114.	United States.
<i>nigricornis</i> Fabr. Entomologia Systematica, 2, p. 313.	Georgia.
<i>nivalis</i> Smith, British Museum Catalogue, Hym. 1, p. 118.	United States.
<i>nubecula</i> Smith,	ibid. 117. U. States. N. Scotia.
<i>obscuripennis</i> Smith,	ibid. 118. Georgia.
<i>perplexa</i> Smith,	ibid. 118. ib.
<i>placida</i> Smith,	ibid. 112. United States.
<i>Pœyl</i> Lucas. LaSagra, Histoire de l'île de Cuba, p. 775.	Cuba.
<i>simplex</i> Smith, British Museum Catalogue, Hym. 1, p. 114.	United States.
<i>valida</i> Say, Boston Journal of Natural History, vol. 1, p. 393.	
<i>vicina</i> Smith, British Museum Catalogue, Hym. 1, p. 112.	Nova Scotia.
<i>victima</i> Smith,	ibid. 113. ib.

**MELITTA** Kirby.

*albicans* Kirby. Smith, (Andrena) British Museum Catalogue, 1, 98. N. Scotia.

**SCRAPTER** St. Farg.

*Andrenoides* Smith, British Museum Catalogue, Hym. 1, p. 121. Ohio.

**CILISSA** Leach.

*Americana* Smith, British Museum Catalogue, Hym. 1, p. 123. United States.

## Fam. APIDÆ.

**PANURGUS** Panz.

*8-maculatus* Say, Long's Second Expedition, vol. 2, p. 350. United States.

**PERDITA** Smith.

*halisteides* Smith, British Museum Catalogue, Hym. 1, p. 128. North America.

**CALLIOPSIS** Smith.

*andreniformis* Smith, British Museum Catalogue, Hym. 1, p. 128. Florida.

*flavifrons* Smith, ibid. 129. ib.

*flavipes* Smith, ibid. 129. ib.

*maculatus* Smith, ibid. 129. ib.

**MACROTERA** Smith.

*bicolor* Smith, British Museum Catalogue, Hym. 1, p. 130. Mexico.

**OSMIA** Panz.

*bucconis* Say, Boston Journal of Natural History, vol. 1, p. 400. Indiana.

*chalybea* Smith, British Museum Catalogue, Hym. 1, p. 143. Florida.

*frigida* Smith, ibid. 142. Hudson's Bay.

*lignaria* Say, Boston Journal of Natural History, vol. 1, p. 399. United States.

*simillima* Smith, British Museum Catalogue, Hym. 1, p. 142. United States.

**LITHURGUS** Latr.

*compressus* Smith, British Museum Catalogue, Hym. 1, p. 147. United States.

*gibbosus* Smith, ibid. 147. ib.

**MEGACHILE** Latr.

*acuta* Smith, British Museum Catalogue, Hym. 1, p. 192. North America.

*bidentata* Smith, ibid. 190. Mexico.

*binotata* Guér. Iconographie Règne Animal, 3, 150. *LaSagra* pl. 19, fig. 9. Cuba.

*brevis* Say, Boston Journal of Natural History, vol. 1, p. 401. Indiana.

*bucephala* Smith, British Museum Catalogue, Hym. 1, p. 193. United States.

*emarginata* Say, Long's Second Expedition, 2, p. 352. Missouri.

*femorata* Smith, British Museum Catalogue, Hym. 1, p. 188. United States.

*flavitarata* Smith, ibid. 183. St. Vincent's.

*frigida* Smith, ibid. 193. North America.

*interrupta* Say, Long's Second Expedition, vol. 2, p. 351. Missouri.

*jugatoria* Say, ibid. 352. ib.

*lanuginosa* Smith, British Museum Catalogue, Hym. 1, p. 190. Florida.

*latimanus* Say, Western Quarterly Reporter, vol. 2, p. 81. Arkansas.

*melanophæa* Smith, British Museum Catalogue, Hym. 1, p. 191. North America.

*morio* Smith, ibid. 189. United States.

*parallela* Smith, ibid. 191. Georgia.

- Pœyi Guér.* Iconographie Règne Animal, 3, 450. *LaSagra*, Cuba, t. 19, f. 10. Cuba.  
*pollicaris* Say, Boston Journal of Natural History, vol. 1, p. 406. Louisiana.  
*pruina* Smith, British Museum Catalogue, Hym. 2, p. 190. United States.  
*pugnatus* Say, Boston Journal of Natural History, vol. 1, p. 408. Indiana.  
*scrobiculata* Smith, British Museum Catalogue, Hym. 2, p. 191. Ohio.  
*vidua* Smith, ibid. 192. Nova Scotia.  
*xylocopoides* Smith, ibid. 189. United States.

**ANTHIDIUM** Fabr.

- curvatum* Smith, British Museum Catalogue, Hym. 2, p. 215. Georgia.  
*dorsale* St. Farg. Hyménoptères, 2, p. 384. Georgia.  
*maculatum* Smith, British Museum Catalogue, Hym. 2, p. 216. Mexico.  
*maculifrons* Smith, British Museum Catalogue, Hym. 2, p. 214. Mexico.  
*notatum* Latr. Ann. du Mus. Hist. Nat. 13, p. 48 & 231. Carolina.  
*perplexum* Smith, British Museum Catalogue, Hym. 2, p. 214. Georgia.

**CHELOSTOMA** Latr.

- albifrons* Kirby, Fauna Boreali-Americana, 4, p. 270. North America.  
*rugifrons* Smith, British Museum Catalogue, Hym. 2, p. 220. Georgia.

**CERATINA** Latr.

- dupla* Say, Boston Journal of Natural History, vol. 1, p. 397. Indiana.  
*eximia* Smith, Trans. Ent. Soc. London, 3rd ser. 1, p. 40. Panama.  
*læta* Spin. Smith, ibid. 40. ib.  
*placida* Smith, ibid. 41. ib.  
*punctulata* Spin. Smith, ibid. 40. ib.

**NOMADA** Fabr.

- americana* Kirby, Fauna Boreali-Americana, 4, p. 269, pl. 6, fig. 3. North America.  
*annulata* Smith, British Museum Catalogue, Hym. 2, p. 248. North America.  
*armata* Sch. Smith, Annals of Natural History, 2nd series, 4, p. 438. N. Scotia.  
*articulata* Smith, British Museum Catalogue, Hym. 2, p. 248. North America.  
*bisignata* Say, Long's Second Expedition, vol. 2, p. 354. United States.  
*fervida* Smith, British Museum Catalogue, Hym. 2, p. 247. Florida. Georgia.  
*imbricata* Smith, ibid. 246. United States.  
*luteola* St. Farg. Encyclopédie Méthodique, 8, p. 365. Carolina.  
*miniata* Smith, British Museum Catalogue, Hym. 2, p. 250. Georgia.  
*pulehella* Smith, ibid. 246. United States.  
*punctata* Fabr. Entomologia Systematica, 2, p. 346. Canada.  
*rubicunda* St. Farg. Encyclopédie Méthodique, 8, p. 365. Carolina.  
*sulphurata* Smith, British Museum Catalogue, Hym. 2, p. 249. Georgia.  
*torrida* Smith, ibid. 250. ib.  
*valida* Smith, ibid. 246. Nova Scotia.  
*vineta* Say, Boston Journal of Natural History, vol. 1, p. 401. Indiana.

**EPEOLUS** Latr.

- donatus* Harris. Smith, British Museum Catalogue, Hym. 2, p. 256. U. States.  
*fumipennis* Say, Boston Journal of Natural History, 1, p. 403. Mexico.  
*lunatus* Say, Long's Second Expedition, vol. 2, p. 354. Missouri.

*mercatus* Fabr. *Systema Piezatorum*, p. 389. Carolina.  
*4-fasciatus* Say, *Western Quarterly Reporter*, vol. 2, p. 82. Arkansa.  
*scutellaris* Say, *Long's Second Expedition*, 2, p. 355. United States.  
*zonatus* Smith, *British Museum Catalogue*, Hym. 2, p. 257. Florida.

#### CELIQYS Latr.

*abdominalis* Guér. *Iconographie Règne Animal*, 3, 453. *LaSagra*, t. 19, f. 11. Cuba.  
*alternata* Say, *Boston Journal of Natural History*, vol. 1, p. 401. Indiana.  
*dubitata* Smith, *British Museum Catalogue*, Hym. 2, p. 272. Florida.  
*funeraria* Smith, ibid. 272. Canada.  
*modesta* Smith, ibid. 271. United States.  
*8-dentata* Say, *Long's Second Expedition*, 2, p. 353. United States.  
*rufipes* Guér. *Iconographie due Règne Animal*, 3, p. 452, pl. 73, fig. 9. Cuba.  
*rustarsus* Smith, *British Museum Catalogue*, Hym. 2, p. 271. United States.

#### STELIS Panz.

*federalis* Smith, *British Museum Catalogue*, Hym. 2, p. 275. United States.  
*obesa* Say, *Boston Journal of Natural History*, vol. 1, p. 398. Indiana.

#### MESOCHEIRA St. Farg.

*asurea* St. Farg. *Encyclopédie Méthodique*, 10, p. 106. Gaudaloupe.

#### MELECTA Latr.

*remigata* Fabr. *Systema Piezatorum*, p. 387. Carolina.

#### CHEYSANTHEDA Perty.

*nitida* Perty. Smith, *Trans. Ent. Soc. London*, 3rd ser. 1, p. 41. Panama.

#### EUCERA Fabr.

*maculata* St. Farg. *Hyménoptères*, 2, p. 129. North America.

#### MACROCERA Latr.

*Americana* St. Farg. *Hyménoptères*, 2, p. 92. Carolina.  
*bimaculata* St. Farg. *Encyclopédie Méthodique*, 10, p. 528. Philadelphia.  
*binotata* Say, *Boston Journal of Natural History*, 1, p. 404. Indiana.  
*Cajennensis* St. Farg, *Hyménoptères*, 2, 94. Smith, *Brit. Mus. Cat.* 2. West Indies.  
*Lanierii* Guér. *Iconographie due Règne Animal*, 3, p. 455, pl. 74, fig. 7. Cuba.  
*nigra* St. Farg. *Hyménoptères*, 2, p. 112. Pennsylvania.  
*obliqua* Say, *Boston Journal of Natural History*, vol. 1, p. 403. Indiana.  
*Pennsylvanica* St. Farg. *Hyménoptères*, 2, p. 97. Pennsylvania.  
*Philadelphica* St. Farg. ib. 110. ib.  
*pruinosa* Say, *Boston Journal of Natural History*. vol. 1, p. 405. United States.  
*rustica* Say, ibid. 406. Indiana.

#### TETRALONIA Spin.

*atrifrons* Smith, *British Museum Catalogue*, Hym. 2, p. 308. North Carolina.  
*fulviventris* Smith, ibid. 308. Mexico?

**MELISSODES** Latr.

<i>atriventris</i> Smith, British Museum Catalogue, Hym. 2, p. 310.	North America?
<i>denticulata</i> Smith,	ibid. 311. United States.
<i>dentiventris</i> Smith,	ibid. 312. Georgia.
<i>desponsa</i> Smith,	ibid. 310. Ohio.
<i>manipularis</i> Smith,	ibid. 312. Georgia.
<i>nigripes</i> Smith,	ibid. 311. United States.
<i>rufo-dentata</i> Smith,	ibid. 314. St. Vincent's.
<i>senilis</i> Smith,	ibid. 311. Ohio.

**XENOGLOSSA** Smith.

*fulva* Smith, British Museum Catalogue, Hym. 2, p. 315. Mexico.

**ANTHOPHORA** Latr.

*abrupta* Say, Boston Journal of Natural History, vol. 1, p. 409. Indiana.  
*apicalis* Guér. Iconographie du Règne Animal, 3, p. 455; tab. 74, fig. 4. Cuba.  
*bomboides* Kirby, Fauna Boreali-Americana, 4, p. 271. North America.  
*Domingensis* St. Farg. Hyménoptères, 2, p. 32. St. Domingo.  
*Floridana* Smith, British Museum Catalogue, 2, p. 339. Florida.  
*frontata* Say, Boston Journal of Natural History, 1, p. 409. Louisiana.  
*fuscipennis* Smith, British Museum Catalogue, Hym. 2, p. 338. North America.  
*marginata* Smith, ibid. 339. Mexico.  
*sponsa* Smith, ibid. 339. United States.  
*taurea* Say, Boston Journal of Natural History, vol. 1, p. 410. Indiana.  
*tricolor* St. Farg. Hyménoptères, 2, p. 86. Gaudaloupe.

**XYLOCOPA** Latr.

*caribea* St. Farg. Hyménoptères, 2, p. 202. Guadalupe.  
*cubecola* Lucas. LaSagra, Histoire de l'île de Cuba, p. 776, pl. 19, fig. 8. Cuba.  
*lateralis* Say, Boston Journal of Natural History, vol. 1, p. 413. Mexico.  
*micans* St. Farg. Hyménoptères, 2, 208. Carolina.  
*tabaniformis* Smith, British Museum Catalogue, Hym. 2, p. 362. Mexico.  
*vidua* St. Farg. Hyménoptères, 2, p. 210. Carolina.

**TETRAPEDIA** Klug.

*atripes* Smith, British Museum Catalogue, Hym. 2, p. 366. Mexico.

**CENTRIS** Fabr.

*aterrima* Smith, British Museum Catalogue, Hym. 2, p. 378. Mexico.  
*carolina* Fabr. Systema Piezatorum, p. 357. Carolina.  
*fasciata* Smith, British Museum Catalogue, Hym. 2, p. 377. Jamaica.  
*Mexicana* Smith, ibid. 378. Mexico.  
*pocilla* St. Farg. Hyménoptères, 2, 154. Havana.

**EULEMA** St. Farg.

*Cajennensis* St. Farg. Hym. 2, p. 14. Smith, (Euglossa) Brit. Mus. Cat. 2. Honduras.

**EUGLOSSA** Latr.

- analis* Westw. *Smith*, Trans. Ent. London, 3rd ser. 1, p. 41. Panama.  
*smaragdina* Guér. Iconographie due Règne Animal, 3, 458. Bay of Campeche.

**BOMBUS** Latr.

- arcticus* Kirby, Parry's 1st Voyage, 1821, Append. p. cexvi. Arctic America.  
*borealis* Kirby, Fauna Boreali-Americana, 4, p. 272. North America.  
*californicus* Smith, British Museum Catalogue, Hym. 2, p. 400. California.  
*carrei* Greene, Annals of the New York Lyceum, 7, p. 170. Washington Territory.  
*carolinus* Fabr. Systema Piezatorum, p. 342. Carolina.  
*ephippiatus* Say, Boston Journal Natural History, vol. 1, p. 414. Mexico.  
*frigidus* Smith, British Museum Catalogue, Hym. 2, p. 399. Hudson's Bay.  
*grœnlandicus* Smith, *ibid.* 393. Greenland.  
*Huntii* Greene, Annals of the New York Lyceum, 7, p. 172. Utah.  
*interruptus* Greene, *ibid.* 11. Oregon.  
*Kirbiellus* Curtis, Ross's 2nd Voyage, Append. p. lxii, pl. A, fig. 2. Arctic America.  
*laboriosus* Fabr. Systema Piezatorum, p. 352. North America.  
*melanopyge* Nyl. Notis. ur Sällsk. pro Faun. et Flor. Fenn. Förh. 1, 236. Sitka.  
*occidentalis* Greene, Annals of the New York Lyceum, 7, p. 170. Puget's Sound.  
*ornatus* Smith, British Museum Catalogue, Hym. 2, p. 398. North America.  
*pleuralis* Nyl. Notis. ur Sällsk. pro Faun. et Flor. Fenn. Förh. 1, 231. Sitka.  
*Polaris* Curtis, Ross's 2nd Voyage, Append. p. lxiii. Arctic America.  
*praticola* Kirby, Fauna Boreali-Americana, 4, p. 274. North America.  
*Sitkensis* Nyl. Notis. ur Sällsk. pro Faun. et Flor. Fenn. Förh. 1, p. 235. Sitka.  
*sonorus* Say, Boston Journal of Natural History, vol. 1, p. 413. Mexico.  
*Suckleyi* Greene, Annals of the New York Lyceum, 7, p. 169. Puget's Sound.  
*sylvicola* Kirby, Fauna Boreali-Americana, 4, p. 272. North America.  
*terricola* Kirby, *ibid.* 273, pl. 6, fig. 4. North America.  
*ternarius* Say, Boston Journal of Natural History, vol. 1, p. 414. Indiana.  
*vagans* Smith, British Museum Catalogue, Hym. 2, p. 399. North America.  
*violaceus* St. Farg. Hyménoptères, 1, p. 473. North America.

**APATHUS** Newm.

- citrinus* Smith, British Museum Catalogue, Hym. 2, p. 385. United States.  
*fraternus* Smith, *ibid.* 385. North America.

**MELIPONA** Latr.

- fasciata* Latr. Magazin der Entomologie, 1, p. 115. Vera Cruz, Mexico.  
*fulvipeda* Guér. Icon. Règ. An. 3, 461, pl. 75, fig. 5. Poey, (Trigona) Hist. Cuba, 142.  
*fulvipes* Guér. *ibid.* 462, pl. 75, fig. 6. Cuba.

**TRIGONA** Jurine.

- bilineata* Say, Boston Journal of Natural History, vol. 1, p. 414. Mexico.  
*fulviventris* Guér. Iconographie due Règne Animal, 3, p. 464. Mexico.  
*laboriosa* Smith, Trans. Entom. Soc. London, 3rd ser. 1, p. 42. Panama.  
*ligata* Say, Boston Journal of Natural History, vol. 1, p. 415. Mexico.  
*mellarius* Smith, Trans. Entom. Soc. London, 3rd ser. 1, p. 42. Panama.  
*mexicana* Guér. Iconographie due Règne Animal, 3, p. 464. Mexico.

## APIS Linn.

- alpina* Linn. Syst. Nat. 2, 961. *O. Fabr.* Fauna Grœnlandica, p. 199. Greenland.  
*amalthœa* Fabr. Syst. Piez. 371. *Sm.* (Trigona) Tr. Ent. Soc. Lon. 3d ser. 1, 41. Pan.  
*americanorum* Fabr. Ent. Syst. 2, 319. *Smith*, Brit. Mus. Catal. 2. North America.  
*annularis* Drury, Insects, vol. 2, p. 71, pl. 37, fig. 7. New York.  
*antiguensis* Fabr. Entomologia Systematica, 2, p. 318. Antigua.  
*atrata* Fabr. Entomologia Systematica, Suppl. p. 275. North America.  
*carolina* Linn. Systema Naturæ, 2, 959. Carolina.  
*centuncularis* Linn. *Smith*, (Megachile) Brit. Mus. Catal. 1, 149. North America.  
*cordata* Linn. *Smith*, (Euglossa) Trans. Ent. Soc. Lond. 3rd ser. 1, p. 41. Panama.  
*Derhamella* Kirby, Mon. Ap. Angl. 2, 363. (Bombus) Faun. Bor. Am. 273. N. Am.  
*disjuncta* Fabr. Ent. Syst. 2, 328. *Kirby*, (Anthophora) Illig. Mag. 5, 114. W. Ind.  
*elata* Fabr. Entomologia Systematica, Suppl. 2, p. 274. North America.  
*fervida* Fabr. Entomologia Systematica, Suppl. 2, p. 274. North America.  
*globosa* Fabr. Ent. Syst. 2, 333. *Kirby*, (Megillia) Illig. Mag. 5, 142. West Indies.  
*griseocollis* De Geer, Mém. Ins. 3, p. 576, pl. 28, figs. 13 & 14. Pennsylvania.  
*grossa* Drury, Insects, vol. 1, p. 108, pl. 45, fig. 3. Jamaica.  
*hæmorrhoidalis* Fabr. Ent. Syst. 2, 339. *Smith*, (Centris) Brit. Mus. Cat. 2. St. Dom.  
*holosericea* Fabr. Ent. Syst. 2, 336. *Kirby*, (Anthophora) Illig. Mag. 5, 113. W. Ind.  
*hortorum* Linn. Syst. Nat. 2, 960. *Sm.* (Bombus) Ent. Annual, 1857, 30. Brit. Am.  
*marylandica* Fabr. Entomologia Systematica, Suppl. 2, p. 273. (N. America.)  
*mellifica* Linn. Systema Naturæ, 2, p. 955. (North America.)  
*mexicana* Linn. Systema Naturæ, 2, p. 953. (Mexico.)  
*nidulans* Fabr. Entomologia Systematica, Suppl. 2, p. 274. North America.  
*novæboracensis* Forst. Novæ Species Insectorum, 1, p. 93. North America.  
*Pennsylvanica* De Geer, Mém. Ins. 3, 575, pl. 28, fig. 12. Pennsylvania.  
*quadridentata* Linn. Syst. Nat. 2, 958. *Smith*, (Cœlioxys) B. M. C. 2. United States.  
*rubicundus* Christ. *Kirb.* (Halictus) Fauna Boreali-Americana, 4, 267. N. America.  
*ruficornis* Linn. Syst. Nat. 2, 958. *Smith*, (Nomada) B. M. C. 2, 238. North America.  
*rufipennis* Fabr. Ent. Syst. 2, 335. *St. Farg.* (Megachile) Hymén. 2, 334. N. Amer.  
*sericea* Forst. Novæ Species Insectorum, 1, p. 91. North America.  
*varians* Rossi. *Kirby*, (Andrena) Fauna Boreali-Americana, 4, p. 268. N. America.  
*versicolor* Fabr. Ent. Syst. 2, 340. *St. Farg.* (Centris) Hym. 2, p. 154. Guadeloupe.  
*vespiformis* Forst. Novæ Species Insectorum, 1, p. 92. North America.  
*viridula* Fabr. Ent. Syst. 2, 342. (Megilla) Syst. Piez. p. 333. North America.  
*virginica* Fabr. Entomologia Systematica, 2, p. 318. North America.  
*virginica* Drury, Insects, vol. 1, p. 96; tab. 43, fig. 1. Virginia.

## ADDITIONS.

## Fam. TENTHREDINIDÆ.

**TRICHIOSOMA** Leach.

*bicolor* Harris. Norton, Proc. Bost. Soc. Nat. Hist. 8, p. 150. Massachusetts.

**ZARÆA** Leach.

*infata* Norton, Proc. Bost. Soc. Nat. Hist. 8, p. 151. Connecticut.

**SELANDRIA** Leach.

*flavipes* Norton, Proc. Bost. Soc. Nat. Hist. 8, p. 222. Connecticut.  
*fumipennis* Norton,                      ibid.                      222.                      ib.  
*inhabilis* Norton,                      ibid.                      220. Massachusetts.  
*rubri* Harris. Norton,                      ibid.                      221. Conn. Mass. Ohio.  
*radis* Norton,                      ibid.                      221. Maine.  
*rufula* Norton,                      ibid.                      221. Connecticut.  
*tilise* Norton,                      ibid.                      221.                      ib.

**ALLANTUS** Panz.

*excavatus* Norton, Proc. Entom. Soc. Phila. 1, p. 143. Maryland.

**MACROPHYA** Dahlb.

*pluricinctus* Norton, Proc. Bost. Soc. Nat. Hist. 9, p. 118. California.

**TAXONUS** Meg.

*dubitatus* Norton, Proc. Bost. Soc. Nat. Hist. 9, p. 119. Conn. Mass.  
*nigrisoma* Norton,                      ibid.                      119. Massachusetts.  
*unicinctus* Norton,                      ibid.                      119. Connecticut.

**STRONGYLOGASTER** Dahlb.

*multicinctus* Norton, Proc. Entom. Soc. Phila. 1, p. 143. Virginia.  
*multicolor* Norton, Proc. Bost. Soc. Nat. Hist. 9, p. 120. Maryland.  
*unicus* Norton,                      ibid.                      120. New York.

**TENTHREDO** Linn.

*californicus* Norton, Proc. Entom. Soc. Phila. 1, p. 198. California.  
*14-punctatus* Norton,                      ibid.                      143. Virginia.  
*nigro-fasciata* Esch. Entomographien, 1822, p. 96. Unalashka, Russian America.  
*subocrulea* Esch.                      ibid.                      96.                      ib.                      ib.  
*semiluteus* Norton, Proc. Bost. Soc. Nat. Hist. 9, 121. Conn. Penn.

**DOSYTHEUS** Leach.

*abdominalis* Norton, Proc. Bost. Soc. Nat. Hist. 8, p. 153. Maine.  
*Aprilis* Norton,                      ibid.                      152. Conn. Maine.  
*maculicollis* Norton,                      ibid.                      153. New York.  
*similis* Norton,                      ibid.                      153. Conn. Maine.  
*Tejoniensis* Norton,                      ibid.                      154. California.



**EMPHYTUS** Leach.

- maculatus* Norton, Proc. Bost. Soc. Nat. Hist. 8, 157. Connecticut.  
*testaceus* Norton, ibid. 156. Pennsylvania.  
*varianus* Norton, ibid. 156. Connecticut.

**FENUSA** Leach.

- curtus* Norton, Proc. Entom. Soc. Phila. 1, p. 199. Pennsylvania.

**NEMATUS** Leach.

- bivittatus* Norton, Proc. Bost. Soc. Nat. Hist. 8, p. 158. Massachusetts.  
*corniger* Norton, ibid. 159. Connecticut.  
*extensicornis* Norton, ibid. 159. New Hampshire.  
*crassus* Esch. Entomographien, 1822, p. 97. Unalashka, Russian America.  
*longicornis* Esch. ibid. 98. ib. ib.  
*luteotergum* Norton, Proc. Bost. Soc. Nat. Hist. 8, p. 161. Maine.  
*nigrinus* Norton, ibid. 160. Connecticut.  
*obscurus* Norton, ibid. 161. Massachusetts.  
*proximatus* Norton, ibid. 119. Massachusetts.

**CRÆSUS** Leach.

- latitarsus* Norton, Proc. Entom. Soc. Phila. 1, p. 199. Pennsylvania.

**EUURA** Newm.

- orbitalis* Norton, Proc. Entom. Soc. Phila. 1, p. 144. Conn. New York.

**LYDA** Fabr.

- abdominalis* Norton, Proc. Entom. Soc. Phila. 1, p. 199. Pennsylvania.  
*fasciata* Norton, ibid. 200. Pennsylvania.  
*semioinctus* Norton, ibid. 144. Virginia.

**XYELA** Dalm.

- tricolor* Norton, Proc. Entom. Soc. Phila. 1, p. 144. Kansas.

**Fam. UROCERIDÆ.****XIPHYDRIA** Latr.

- attenuatus* Norton, Proc. Entom. Soc. Phila. 1, p. 144. Pennsylvania.

**Fam. CYNIPIDÆ.****CYNIPS** Linn.

- lignicola* Osten Sacken, (Synergus?) Proc. Ent. Soc. Phila. 1, p. 252. Washington.  
*pesomachoides* Osten Sacken, ibid. 250. Baltimore.  
*querus coccineæ* Osten Sacken, ibid. 243. Washington.

<i>quercus cornigera</i>	<i>Osten Sacken</i> , Proc. Ent. Soc. Phila. 1, p. 251.	Washington, D. C.
<i>quercus inanis</i>	<i>Osten Sacken</i> ,	ibid. 242. ib.
<i>quercus juglans</i>	<i>Osten Sacken</i> ,	ibid. 255. ib.
<i>quercus operator</i>	<i>Osten Sacken</i> ,	ibid. 257. ib.
<i>quercus spongifica</i>	<i>Osten Sacken</i> ,	ibid. 244. ib.
<i>quercus strobilana</i>	<i>Osten Sacken</i> ,	ibid. 254. ib.

## Fam. EVANIIDÆ.

**LEPTOPHONUS** Smith.

*peleciniiformis* *Smith*, Trans. Ent. Soc. London, 3rd ser. 1, p. 43. Panama.

**MEGISCCHUS** Brullé.

*niger* *Smith*, Trans. Ent. Soc. London, 3rd ser. 1, p. 44. Panama.

## Fam. ICHNEUMONIDÆ.

**PEZOMACHUS** Gr.

*minimus* *Walsh*, Insects injurious to Vegetation in Illinois, p. 36, figs. 6 & 7.

*Thripites* *Taylor*, American Agriculturist, New York, October, 1860, p. 300, fig. 3.

**AMITUS** Hald.

*aleurodinus* *Hald.* Silliman's American Journal of Science, 2nd ser. 9, 110. Penn.

*corni* *Hald.* ibid. 109. Penn.

**ERETMOCERUS** Hald.

*corni* *Hald.* Silliman's American Journal of Science, 2nd ser. 9, p. 111. Penn.

**MICROGASTER** Latr.

*Oleracea* *Taylor*, American Agriculturist, New York, October, 1860, p. 301, fig. 5.

## Fam. CHALCIDIDÆ.

**SMIERA** Spinola.

*transitiva* *Walker*, Trans. Entom. Soc. London, 3rd ser. 1, p. 371. Florida.

**CHALCIS** Fabr.

*oomitator* *Walker*, Trans. Entom. Soc. London, 3rd ser. 1, p. 350. Mexico.

*pendator* *Walker*, ibid. 351. St. Domingo.

*restituta* *Walker*, ibid. 351. Jamaica.

**PERILAMPUS** Latr.

*gloriosus* *Walker*, Trans. Entom. Soc. London, 3rd ser. 1, p. 375. Mexico.

## Fam. CHRYSIDÆ.

**HOLOPYGA** Dahlb.

*Dehrni* Dahlb. Hymenoptera Europæa, 2, p. 48, pl. 3, fig. 56. New York. Cuba.

**HEDYCHERUM** Latr.

*Dupenti* Dahlb. Hymenoptera Europæa, p. 83. Mexico.

*Zimmermanni* Dahlb. ib. 61. New Jersey.

**CHRYSIS** Linn.

*hilaris* Dahlb. Hymenoptera Europæa, 2, p. 103. New York.

*inæquidens* Dahlb. ib. 334. ib.

*parvula* Dahlb. ib. 191, pl. 10, fig. 106. S. Carolina. Mex.

*violacea* Dahlb. ib. 316. North America.

## Fam. CRABRONIDÆ.

**OXYBELUS** Latr.

*uniglumis* Dahlb. Hymenoptera Europæa, 1, p. 273. Carolina.

**TRYPOXYLON** Latr.

*fugax* Fabr. Syst. Piez. p. 182. Dahlb. Hymenoptera Europæa, 1, p. 509. Mexico.

**CRABRO** Fabr.

*impressifrons* Smith, British Museum Catalogue, Hym. 4, p. 417. Pennsylvania.

**CERCERIS** Latr.

*cineta* Klug. Dahlb. Hymenoptera Europæa, 1, p. 204. North America.

**ANTHOPHILUS** Dahlb.

*gibbosus* Dahlb. Hymenoptera Europæa, 1, p. 192. Carolina.

## Fam. LARRIDÆ.

**TACHYTES** Panz.

*murina* Dahlb. Hymenoptera Europæa, 1, p. 132. North America.

## Additions to the Catalogue of U. S. LEPIDOPTERA, No. 2.

BY AUG. R. GROTE.

## Fam. LITHOSIIDÆ.

Gen. *CROCOTA* Hübn.*C. opella* nov. sp.

Anterior wings entire, oblong, straight along the exterior and internal margins, apex rounded, brownish-tawny, somewhat reddish along the costa and without distinct markings. Posterior wings reddish with discal spot and shaded with brownish. Under surface of wings bright reddish without markings. Legs brownish. Thorax same color as anterior wings. Antennæ darker than thorax. Palpi reddish. Abdomen lighter brown than thorax; paler underneath. Exp. one and three-sixteenth inches.

A female. *Hab.* Pennsylvania. (Coll. Entom. Soc. Phila.)

## Fam. DREPANULIDÆ.

Gen. *DRYOPTERIS* Grote.

Antennæ bi-pectinated in the male with short and thick set branches simple, or nearly so, in the female. Palpi short. Wings broad; superior pair obtusely falcate with the exterior border convex near the middle; third inferior vein twice or thrice further from the fourth than from the second. Legs pilose. Abdomen shorter than the inferior wings.

I have enlarged the diagnosis of this genus since its first publication in the Proceedings of the Academy of Natural Sciences, and think I have rendered its characters more appreciable.

The species included under it differ from those under *Platypteryx* Lasp. by their obtusely falcate superior wings which are nearly straight along the costa and convex near the middle of the exterior border; by their bright colors, somewhat stouter bodies and legs, the latter densely clothed with hairs, while in *Platypteryx* Lasp., the legs are slender and naked. The type of this Genus is *D. rosea* Walker, C. B. M. VIII (see Plate 3, fig. 1 ♀) and the synonyms to be observed of that species are *Cilix americana* H. S. Lep. Exot. p. 60, fig. 470, and *Platypteryx formula* Grote, Proc. Acad. Nat. Sci. Phila. 1862, p. 60.

*D. marginata* Walker belongs to this genus.

Gen. **PLATYPTERIX** Lasp.

Antennæ bi-pectinate in the male simple or nearly so in the female. Palpi short. Body slender; abdomen shorter than the inferior wings. Wings broad, falcate, convex along the costa, undulating along the exterior border; third inferior vein not further from the fourth than from the second. Legs slender and bare.

—*fabula* Grote, Proc. Acad. Nat. Sci. Phila. 1862, p. 59 (see Plate 3, fig. 2, ♂).

I have seen only the male of this species which is apparently rare. It is readily distinguishable from the following by the ground color and disposition of the bands on the superior wings.

—*genicula* Grote, Proc. Acad. Nat. Sci. Phila. 1862, p. 59 (see Plate 3, fig. 3, ♂).

I have seen the female of this species in the collection of Mr. Edward L. Graef, Brooklyn, L. I., and it differs, to the best of my recollection, by merely the usual sexual differences.

Fam. **REMIGIDÆ**.Gen. **PANOPODA** Gn.

*P. Cressonii* nov. sp. (See Plate 3, fig. 4.)

Superior wings reddish-grey with two transverse red bands bordered by a yellow line. Median shade brown crossing the lower end of the reniform spot which it tinges red. Reniform spot yellow clearly defined on the side nearest the base of the wing by a dark line, orbicular spot black reduced to a small dot. Terminal space with a row of whitish spots margined with black, two near the centre surrounded by a brownish shade. Costa light, collar and head dark, red. Inferior wings same color as superior lighter towards the base and upper margin with a band running from the anal angle about two-thirds across the wing of the same colors as, and apparently a continuation of, the outer band on the superior wings. Under surface of the wings grey powdered with red showing plainly a band and discal spots on both superior and inferior pair.

A male. *Hab.* Maryland. (Coll. Entom. Soc. Phila.)

Differs from *P. rubricosta* Gn., by the color and shape of the reniform mark, and from *P. rufimargo* Hüb., by the strongly marked median shade band on the anterior wings.

I have dedicated this apparently undescribed species to Mr. E. T. Cresson of Philadelphia.

Fam. HELIOTHIDÆ Gn.

Gen. **HELIOTHIS** Ochs.

*H. armigera* L. U. S. and Eur. = *umbrosus* Gt. Proc. Entom. Soc. Philad. 1862, p. 219.

Since describing the above I received from this Society a case of *Heterocera* to determine and found several individuals of this species among them, which approach more nearly to the European *H. armigera* and make it probable that this is the species regarded by Guenée as identical with the latter.

The discovery of the larva might prove our species distinct from the European, but judging from a series of perfect individuals it must be regarded as identical. The specimen from which I made the description presented differences which, when compared with a European specimen, I regarded as specific; with a larger series of individuals before me I am inclined to regard them as constituting a mere variety. This species should be catalogued as above. It is not enumerated in Morris's Catalogue published by the Smithsonian Institution.

Fam. ACIDALIDÆ Gn.

Gen. **ACIDALIA** Tr.

*A. persimilata* nov. sp. (See Plate 3, fig. 5.)\*

Greyish-green spotted with white with a wavy white line crossing both superior and inferior wings near the outer margin lined with a darker shade and crossing on the anterior wings a row of blackish dots. There is a row of minute white dots in the terminal spaces, a median shade line running through both wings and the faint traces of another near the base of the wings. Thorax and abdomen same color as wings. Antennæ white on their upper surface. Under surface of body and wings white inclining to greyish near the costa, with the terminal line faintly visible on both wings. Exp.  $\frac{1}{2}$  inch.

A female, taken in Erie County, New York. (Coll. Ent. Soc. Phila.)

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\* The figure is indifferent, and gives but a general idea of the insect.

## STATED MEETING, FEBRUARY 9.

President BLAND in the Chair.

Fifteen members present.

## REPORTS OF COMMITTEES.

The Committees on the papers of Messrs. Bland, Norton, Osten Sacken and Couper, read January 12th, reported in favor of their publication in the Proceedings of the Society.

## DONATIONS TO LIBRARY.

*Proceedings of the Boston Society of Natural History*, Vol. 9, pages 113 to 160. From the Society.

*Prairie Farmer* (Chicago, Ill.), Nos. 1 to 6 of Vol. 11. From the Editors.

*Silliman's American Journal of Science and Arts*, 1818—1862. 84 Vols. 8vo. Presented by William S. Wilson, on condition that they may not be loaned from the Hall of the Society.

The following works were deposited by Dr. T. B. Wilson:—

*Proceedings of the Zoological Society of London*, 1830—1861. 31 Vols. 8vo.

*Illustrations of British Entomology*. By J. S. Stephens. 12 Vols. 8vo.

*Memoires pour servir a l'Histoire des Insectes*. Par Charles DeGeer. 7 Tomes in 8 Vols. 4to.

*Afbeeldingen en Beschryvingen der Wantzen*. • Door Caspar Stoll. 1 Vol. 4to.

*Afbeeldingen en Beschryvingen der Cicaden*. Door Caspar Stoll. 1 Vol. 4to.

## WRITTEN COMMUNICATIONS.

Letters were read

From William S. Wilson, Esq., dated Philada. Jan. 28th, 1863, acknowledging his election to Resident Membership in the Society, and transmitting donations to the Library.

From Messrs. Edward L. Graef, dated Brooklyn, Jan. 17th, 1863; M. Miles, dated Lansing, Mich., Jan. 23rd, 1863, and George D. Smith, dated

Boston, Jan. 26th, 1863, severally acknowledging their election to Corresponding Membership in the Society.

A communication was read from Benj. D. Walsh, Esq., dated Rock Island, Ill., Jan. 19th, 1863, submitting the following observations on *PAPILIO GLAUCUS* and *PAPILIO TURNUS*:—

“That *Turnus* and *Glaucus* are identical, seems to be proved by two facts, the one positive, the other negative. *First*, I am informed by Mr. Edwards that Mr. Newman and Mr. Wood of Philadelphia both say they have raised the black ♀, together with several shades of color between yellow and black, from the same laying of eggs. *Second*, nobody ever saw a ♂ *Glaucus*. — Mr. Edwards indeed once informed me that he knew of such a specimen, but it proved subsequently, on a closer examination by him, to be a ♀. Now *Glaucus* is so common in southern latitudes, that if it were a true species, not a mere sexual distinction, somebody or other *must* have met with the ♂, particularly as in *Papilio* the males are generally three or four times as numerous as the females.

There is another phenomenon connected with this species of *Papilio*, which has never, I believe, been hitherto elucidated. In New York and the New England States, as I learn from Mr. Edwards, the ♀ of *Turnus* is always yellow. “He never” he says “saw a black ♀ himself, or knew of one being taken by any of his correspondents in that region, though he has often taken the yellow ♀. But from Philadelphia south there are many black ones.” In the summer of 1861, when I was myself entomologizing in the extreme southern point of Illinois, I captured in one clover field between 70 and 80 specimens of *Turnus*, with the express object of investigating this question of the sexes. Every single yellow one was a ♂, and every single black one a ♀, the former being to the latter about as 4 or 5 to 1. There was indeed a single black one which from the shape of the abdomen I thought at first might be a ♂, but on squeezing out the contents of the abdomen, eggs made their appearance, and effectually demolished the supposition. On the other hand, in Rock Island, which lies in about 41° 30', both black and yellow ♀♀ occur, but the black form is 5 or 6 times as numerous as the yellow, judging from the careful observation of five years. The point in southern Illinois just referred to was in the same latitude as Richmond, Virginia.

On these data, which however require to be confirmed by additional observations, I incline to the opinion that south of about 38° in the Valley of



the Mississippi, and perhaps about  $36^{\circ}$  on the Atlantic seaboard, the ♀ *Turnus* is *black*; that north of about  $41^{\circ}$  on the Atlantic seaboard, and perhaps about  $43^{\circ}$  in the Valley of the Mississippi, the ♀ *Turnus* is *yellow*; and that in the intervening district black and yellow females are intermingled in varied proportions. Dr. Fitch long ago remarked that southern forms reach much higher latitudes in the Valley of the Mississippi than they do on the Atlantic coast and my own experience has led me to believe that the difference amounts to at least two degrees of latitude.

Be this as it may, the fact is certain, that in some districts in the United States, the ♀ *Turnus* is almost universally yellow, in others almost universally black. If the question of normality is to be decided only by the relative numbers of black and of yellow ♀ ♀, a *Jury* of Entomologists would bring in one verdict at Cairo, and another at Boston; and at Philadelphia they would probably bring in no verdict at all. Numbers, therefore, cannot be a safe or a philosophical criterion on this point.

We have a somewhat similar case, in the closely allied family *Pieridae*, with the genus *Colias*. There are three species of this genus described by my friend Mr. Scudder as occurring in boreal America, the ♂ of which is yellow and the ♀ white.\* On this account they are placed by that writer in a section by themselves. But, as he himself adds, there are also two kinds of ♀ ♀ of the common *C. philodice*, one yellow, the other whitish, but always either of one tint or the other with no intermediate gradations, the white ♀ being of great rarity. On account of this rarity of the white ♀, *philodice* is placed by him in a section where the two sexes are of the same color. At Rock Island *C. philodice* is very common and *C. eurytheme* Boisd. (*C. amphidusa* Boisd.) is also quite common, and in one particular year white ♀ ♀ belonging to one or the other of these two species were very common, though generally they are rather scarce. Hence, if the question of rarity is to govern the question of normality, it would seem to follow that at Rock Island in A. D. 1859 the normal ♀ of a non-boreal species of *Colias* was white, and in other years yellow, which is absurd.

If intermediate grades occurred between the black and the yellow ♀ *Turnus* in a State of Nature, which so far as my experience goes is not the case, (though, if Mr. Newman and Mr. Wood are correctly reported, they bred intermediate specimens,) we might call this phenomenon a mere variety. If, again, it occurred in both sexes, we might call it, as Mr. Scudder has done, in the case of *C. philodice* albinism; and in the case of *P. Tur-*

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\* Proceedings Boston Soc. Nat. Hist, September 1862, p. 104.

*nus* melanism. But the phenomena in question seem to be confined to the ♀ sex; and albino rabbits, albino mice and albino human beings occur indiscriminately of *both* sexes.

It seems to me more philosophical, in all such cases as these, to consider the ♀ form which departs from the ♂ type to be the normal one, no matter whether it be rare or common, and the ♀ form which approximates to the ♂ type to be an example of what some authors have called gynandromorphism; i. e. where the ♀ assumes or affects ♂ peculiarities, as when the common domestic hen assumes the ♂ plumage and crows like a cock, and when very aged women, or in the case of the "Bearded Lady", quite a young woman, acquire the beard and the voice of a man.

In this country, so far as I am aware, the ♀ of all our *Dytisci* has the elytra always either smooth or sulcate in one and the same species. In Europe, on the contrary, no less than six species are enumerated by Dr. Erichson, where the females sometimes have their elytra smooth, or similar to the males sometimes sulcate (*D. marginalis* L., *conformis* Kunze, *circumcinctus* Ahr., *dubius* Gyll., *lapponicus* Payk., and *septentrionalis* Gyll.). And it is added that "in the neighborhood of Berlin both kinds of females of *D. circumcinctus* are found promiscuously, elsewhere one or the other variety is occasionally wanting. Thus in the lakes near Magdeburg, amongst many thousands of *D. circumcinctus*, not a single female with sulcate elytra could be found".\* Could there be a stronger analogy with ♀ *Turnus*, which, as I have shewn, is yellow in some districts of country, black in others, and in others again black and yellow promiscuously? If an inhabitant of New England says that the normal female of *Turnus* is yellow, an inhabitant of Magdeburg would be equally entitled to say that the normal female of *Dytiscus circumcinctus* has smooth, and not sulcate, elytra.

The fact of Mr. Ridings having in 1832 taken a ♀ *Glancus* in coitu with a ♂ *Turnus* is not, though a very strong proof, absolutely conclusive as to their identity. M. Audouin has observed that allied species of *Coccinella* copulate, producing sterile eggs;† and I have myself seen in my collecting bottle, which holds a pint and which I always fill with dry leaves, a ♂ *Chilocoris bivulnerus* Muls., copulate distinctly with a ♀ *Coccinella abdominalis* Say.

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\* Quoted in Westwood's Introduction, I, p. 104.

† Quoted in Westwood's Introduction, I, p. 396.

In the year 1862 I bred a black ♀ *Turnus* from a larva found near Rock Island on the wild cherry in 1861, which was pea-green, and corresponded accurately with another larva taken by me in Southern Illinois, on sassafras, the description of which I annex. This fact, I think, disposes of Mr. Stauffer's theory of the larvæ of the two insects being distinct, that of *Glaucus* brown, that of *Turnus* green. The larva from South Illinois died in the pupa state.

Length  $2\frac{1}{4}$  inch. Diameter of the third segment .4 inch: of abdominal segments  $\frac{3}{4}$  inch. Color opaque velvety grass-green, lighter on the sides with a bluish tint, verging to white beneath. Head bluish, lighter in front. The nuchal fork behind the head one-sixteenth of an inch long when contracted, fuscous, its base yellowish, its prongs which are sharp black. The first and second segments of the body narrowed, the third and fourth broadest, thence tapering a little to the tail. The first segment yellowish behind the head. On the humerus of the third segment an irregularly oval yellow spot .1 long, bordered by a narrow black line, and with a black figure "10" in its centre, the 1 of the 10 inside. A pale narrow yellow band above at the back of the fourth segment, followed by a still narrower black band. On the middle of segments 4—11 four transverse equidistant blue dots, conspicuous on 4, fainter on 10 and 11. Inside of each humeral yellow spot or figure of 10 one blue dot, on segment 4 an appearance of two additional lateral dots above the spiracle. Anal segment light bluish-green. Legs immaculate, greenish white.

I have on four or five occasions found upon apple-trees young papilionide larvæ,  $\frac{1}{2}$  inch long, brown before and behind and white on their central segments, which, although I was unable to breed them, I suppose to be the immature form of the larva of *Turnus*, since that larva, as is stated by Dr. Fitch, sometimes occurs on the apple. May it not be possible that the larvæ described by Mr. Stauffer were in an intermediate state between this very young form and the full grown larva, which in the six or seven specimens that I have at various times met with was always grass-green?

I observe that Mr. Ridings says that "he has taken female (*Turnus*) of all shades from a deep black to a dark yellow." I suppose I have taken over 50 black females of *Turnus* altogether, when unrubbed and new, they are always black; when weather-worn and old, they assume a paler and dingier hue, and the tiger stripes become plainer; but in no instance was there any approximation to yellow. The yellow female is, with us, a shade and only a shade darker than the male."

The following papers were presented for publication in the Proceedings:  
 "American Micro-lepidoptera, by Brackenridge Clemens, M. D."

"Descriptions of certain species of Diurnal Lepidoptera, found within the limits of the United States and British America, No. 1, by W. H. Edwards."

And were referred to Committees.

#### NEW BUSINESS.

The thanks of the Society were unanimously voted to William S. Wilson, Esq., for his kindness and liberality in presenting the Society with a complete set of Silliman's American Journal of Science and Arts, from the commencement to January, 1863.

#### ELECTIONS.

Mr. James H. Ridings, of Philadelphia, was elected a *Resident Member*, and Messrs. Isaac C. Martindale, of Byberry, Pa., Homer F. Bassett, of Waterbury, Conn., and Samuel Auxer, of Lancaster, Pa., were elected *Corresponding Members* of the Society.

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#### Descriptions of a few supposed new species of North American COLEOPTERA.

BY JAMES H. B. BLAND.

##### CYCHRUS RIDINGSII n. sp.

Cupreous; head black; thorax smooth, heart shaped, narrowed posteriorly; elytra oblong, convex, striated, regularly punctured.

*Hab.* Virginia. (Coll. Entom. Soc. Phila.)

♀. Head black, shining, four basal joints of the antennæ black; terminal joint of palpi elongate; mouth dark rufous. Thorax smooth, shining, heart shaped, suddenly constricted posteriorly; a deep longitudinal sulcus on the dorsal surface, a few impressions near the lateral margin which is slightly elevated, posterior margin deeply impressed and slightly punctured. Elytra oblong, convex, regularly striated, neatly punctured, the striæ near the suture continues to the tip. Epipleuræ dark blue, beneath black, legs piceous. Length 7 lines.

This pretty little species was collected in Hampshire Co., Virginia, and

presented by Mr. James Ridings, to whom I dedicate it. It has somewhat the appearance of being a very small specimen of *C. Andrewsii* Harris, but on comparison the differences are very apparent; the great diversity in size, the smooth thorax, and the striæ of the elytra continuing regular to almost the tip, are characters readily observed. The punctures on the thorax of *Andrewsii* cover a considerable portion of the surface, which is also transversely rugose. The thorax of the species above described is not at all rugose, and only a few scattered punctures are visible about the posterior margin; the sides of the thorax are more angulated and more suddenly constricted posteriorly than in *Andrewsii*; the lateral margin of the elytra is regularly and broadly rounded and not flattened or straightened as in the latter species.

CYCLOCEPHALA LURIDA n. sp.

Yellowish-brown, punctured; head black; elytra mottled with brown.

*Hab.* Texas. (Coll. Entom. Soc. Phila.)

Body yellowish-brown, punctured. Head black, coarsely punctured between the eyes, smooth on the vertex and basal margin; clypeus dark rufous, roughly and densely punctured. Thorax deeply and sparsely punctured, with a smooth dorsal line which divides a large dusky mark on the dorsal surface; a small, brown, shallow impression on either side before the middle. Scutellum yellowish margined with black, sparsely punctured. Elytra irregularly mottled with brown, somewhat sparsely punctured; humeri prominent; sides deeply impressed near the humeri; suture black. Beneath minutely and closely punctured and clothed with erect yellowish hairs. Legs yellowish-brown, punctured; femora slightly tipped with black; tibial spurs black; tarsi brown. Length 7 lines.

Four specimens from Western Texas, presented by Dr. Geo. H. Horn. The punctures on each elytron are so arranged as to form apparently three smooth, irregular, longitudinal lines, each line being bounded on either side by a regular row of punctures; otherwise the punctures are irregularly scattered over the surface. The clypeus is shaped as in *immaculata*. But the form of the body is more robust than that of the latter species.

CORYMBITES FULVIPES n. sp.

Black, clothed with a short whitish pubescence; legs bright fulvous.

*Hab.* Virginia. (Coll. Entom. Soc. Phila.)

Body very elongate, black, shining and clothed with a short whitish

pubescence. Antennæ deep black, opaque, half the length of the body, compressed and strongly serrate; 3rd to 10th joints about equal in length, terminal joint longest and suddenly constricted at its apex. Head and thorax densely and profoundly punctured, the latter almost half the length of the elytra, with a deep longitudinal sulcus on the disk not quite reaching the anterior margin; sides almost straight, slightly wider in front; anterior angles slightly rounded, posterior angles very long, divergent and distinctly carinated with their apex truncate; posterior margin strongly impressed on either side. Elytra gradually attenuated behind the middle; striæ well impressed, apparently impunctured; interstices minutely punctured. Beneath, the abdomen and postpectus are shining and minutely punctured; the disk of the thorax is shining, deeply and somewhat sparsely punctured, and the sides are subopaque and very densely and confluent punctured. Legs bright fulvous, tarsi dusky. Length 7 lines.

Collected in Hampshire County, Virginia, and presented by E. T. Cresson. The antennæ have the appearance of being 12-jointed in consequence of the singular constriction of the apex of the terminal joint.

CORYMBITES NEBRASKENSIS n. sp.

Head, thorax, scutellum, and body beneath black; elytra reddish yellow.

*Hab.* Nebraska. (Coll. Entom. Soc. Philada.)

Body black, shining. Head densely punctured, piceous. Antennæ light brown varied with dark brown, 3rd joint subcylindrical, 4th and following joints serrate, terminal joint attenuated. Thorax short, not longer than wide, deep black, shining; sides broadly rounded; posterior angles short, acute and slightly divergent, and apparently not carinated; basal margin somewhat deeply impressed on either side, and sparsely clothed with yellowish pubescence (which may, in fresh specimens, cover the whole surface of the thorax). Scutellum black, with a shallow depression on the disk. Elytra reddish-yellow, deeply impressed around the scutellum; base not wider than the thorax; sides distinctly impressed above the middle, then gradually dilating to the posterior third and then rounded to the apex; dorsal surface flattened, sides deflexed with the margin prominent and slightly reflexed; striæ punctured, deeply impressed at the base of the elytra but not quite reaching the extreme basal margin, less deeply impressed towards the apex where they become almost obsolete; interstices flat and very minutely punctured. Body beneath shining black, minutely punctured. Legs light brown, thighs darker. Length 4½ lines.

Collected near Fort Benton, on the upper Missouri, by Mr. John Pear-sall, and presented by him to the Society.

*CYMATODERA PUNCTICOLLIS* n. sp.

Body yellowish; thorax with a small black puncture on the disk; elytra with two transverse blackish bands.

*Hab.* Texas. (Coll. Entom. Soc. Phila.)

Body yellowish, thickly clothed with yellow hairs. Head shining; mandibles tipped with black. Antennæ 11-jointed, 2nd, 3rd and 4th joints about equal. Thorax shining, very minutely punctured, suddenly constricted at the posterior third and enlarging again at the base; a small, black, shining puncture on the disk. Elytra yellowish, deeply punctured in regular rows apparently without impressed striæ; a narrow, indistinct, blackish, transverse band near the base, extending from the suture to near the lateral margin; at the posterior third a broad, blackish, distinct, transverse band, also extending from the suture to near the lateral margin. Body beneath yellowish, clothed with yellowish hairs. Legs very minutely punctured, Length 2 lines.

This pretty little species was collected in Western Texas by Mr. E. T. Cresson, and presented by him to the Society. The antennæ, head and thorax are somewhat darker in color than the remainder of the body.

*ORTHOPLEURA TEXANA* n. sp.

Dark piceous, shining, densely punctured, clothed with rather short golden-yellow hairs.

*Hab.* Texas. (Coll. Entom. Soc. Phila.)

Body dark piceous, thickly clothed with golden-yellow hairs. Head closely and coarsely punctured; eyes very large and coarsely granulated; palpi dark brown; three terminal joints of the antennæ black, remaining joints dark rufous and furnished with yellowish setæ. Thorax densely punctured, with the hairs short and erect. Elytra closely and deeply punctured, depressed at the base between the humeri and scutellum; the hairs on the surface are prostrate. Beneath dark piceous, subsericeous, minutely punctured. Legs piceous, clothed with rather long light colored hairs. Length 6 lines.

Three specimens from Western Texas, presented by Dr. Horn and E. T. Cresson.

Catalogue of our species of **OPHION**, **ANOMALON**, **PANISCUS** and **CAMPOPLEX**.

BY EDWARD NORTON.

The synopsis of genera here adopted is that proposed by Dr. Holmgren. The genera remaining undescribed are more numerous and contain many small species, which require a large collection of specimens to do them justice. Several species which seem to approach the genus *Absyrtus* are omitted for further examination.

Where not otherwise mentioned, the terebra is not longer than the width of the apical segment.

ARRANGEMENT OF GENERA. **OPHIONIDÆ.**Section I. *First submarginal wing cell receiving two recurrent nervures.*A. *Antennæ on outer side incrassate, subclaviform.*B. *Antennæ filiform or setaceous, not incrassate toward the apex.***OPHION** Fab.**THYREODON** Brullé.Section II. *First submarginal wing cell receiving one recurrent discoidal nervure.*Division I. *Abdomen petiolate.*Phalanx I. *Marginal wing cell commonly lanceolate, areolate angle obtuse.*Sub-division I. *Posterior femora simple, unarmed.*A. *Metathorax with oval or oblong spiracle (in Absyrtus subrotund).*a. *Nails of the tarsi simple, not pectinate.*†. *Mandibles with two very unequal teeth at the apex. Recurrent discoidal nervure received in middle of first submarginal wing cell.*\*). *First article of posterior tarsi about twice as long as the second.***EXOCHILUM** Wesm. Apical margin of clypeus truncate.\*\*). *First article of posterior tarsi four times as long as second.***HETEROPELMA** Wesm. Apical margin of clypeus broadly rounded.††. *Apex of clypeus in the middle acute angled or pointed. Apex of mandibles with two subequal teeth. Recurrent discoidal nervure received before the middle of submarginal wing cell.***ANOMALON** Grav. Eyes naked.b. *Nails of tarsi pectinate.*\*. *Scutellum somewhat convex, rounded at apex. Areolet of the wings present.*a. *Spiracle of first segment of abdomen situated before the middle.***PANISCUS** Grav.**ABSYRTUS** Holm. Head scarcely buccate. Scape of antennæ very obtusely cut off. Metathorax with subrotund spiracle.β. *Spiracle of first segment of abdomen situated between middle and apex.***CAMPOPLEX** Grav.\*\*. *Scutellum depressed, subquadrate. Areolet of wings wanting.*

Charops Holm.

B. The remaining genera not yet examined.



## OPHION Fab.

Abdomen compressed, petiolate; segment narrow, spiracle situated behind the middle, terebra short. Wings without areolet; feet slender, nails of tarsi pectinate.

A. *First submarginal cell including membranaceous spots.*a. *With two spots.*1. *Ophion purgatus.*

*Ophion purgatus* Say, Bost. Jour. 1, 239. ♀ ♂. Emmons, N. H. N. Y. Ag. V, 197.

*Ophion lateralis* St Farg. Hym. IV, 141.

New England, N. Y., Pa., Car. (St. Farg.), Fla., Ind. (Say.), Ill.

2. *Ophion cubensis*, n. spec. ♀ Length 0.68. Br. wings, 1.04 inch.

Color yellow rufous, with yellow spots, and apex of abdomen rufous. Antennæ slender, toward the end blackish. Head yellow, a spot within ocelli and a short longitudinal line below antennæ piceous; eyes more contracted below than in *Ophion purgatus*; the mesothorax, except the edges and two pale longitudinal lines, all the incisures of the thorax, the pectus and the three apical segments of the abdomen piceous; several spots on pleura, metathorax and the third and fourth segments of abdomen yellow; inner spines of tibiae much stronger than exterior; wings hyaline; stigma and costa to tip of wings yellow; inner marginal nervure enlarged from stigma to recurrent nervure; the bulla on second submarginal cross nervure small and slightly removed from end of nervure; inner spot in submarginal cell triangular, incurved outwardly, opposite to which is the second smaller crescent-shaped spot.

Cuba.

Three specimens examined. (Collection of Baron Osten Sacken.)

b. *With one spot.*3. *Ophion glabratus.*

*Ophion glabratus* Say, Bost. Jour. 1, 239. Emmons, N. H. N. Y. Ag. V, 196.

Indiana (Say).

Not seen.

B. *First submarginal cell including no membranaceous spots.*\*). *Inner radial wing nerve straightly or evenly curved.*4. *Ophion bilineatus.*

*Ophion bilineatus* Say, MacL. Lyc. p. 75. Bost. Jour. 1, 248. ♀ ♂.

N. England, N. Y., Md., Ia. (Say), L. Sup., L. Winnepeg (Camb. Mus.).

5. *Ophion bifoveolatus.*

*Ophion bifoveolatus* Brullé, Hym. IV, 139. ♀ ♂.

N. Y., Md., Ill., Red River, Ark. (Smith. Inst.).

The description of this will apply as well in some cases to the *bilineatus* of Say. But the following points of difference may be noted. The antennæ not quite as long, eyes smaller and more widely separated, cheeks and back of head much more prominent. The carina crosses the metathorax of *bilineatus* transversely in an unbroken curve, while in this it forms quite a crescent shaped curve in the middle and is sometimes indis-

tinct or entirely wanting. The colors of the body vary, being sometimes pitchy brown with the thoracic lines indistinct, while sometimes they are almost white and much more distinct than in any specimens of *bilineatus*, and the body varied with yellow spots. The costal nerves are very black, with no yellow except within the stigma. This is not so common as *bilineatus*.

\*\*) Inner radial wing nerve incrassate toward the stigma and recurved.

6. *Ophion macrurum*.

*Ichneumon macrurum* Linn. Mant. 540.

*Ophion macrurum* Drury, Ex. Ent. I, 92, pl. 43, 5. Emmons, N. H. N. Y. Ag. V, p. 196, pl. 27, fig. 5.

*Ophion cecropia* Harris, Catalogue.

*Ophion rugosus* Brullé, Hym. IV, 138.

N. England, N. Y., Pa., Ill., N. Orleans.

Parasite on *Attacus Cecropia* and *Polyphemus*. The largest specimens are about 1.40 inch in length and 2.24 inches in br. wings. They vary much in size and somewhat in form of large submarginal cell, in the upper part of which all have a large very clear space.

**THYREODON** Brullé.

Clypeus enlarged and advanced in the middle in form of a tooth; mandibles wide; second article of maxillary palpi enlarged; metathorax rounded at summit.

7. *Thyreodon morio*.

*Ichneumon morio* Fab. Ent. Syst. II, 180, 194 (1775). Spec. Ins. I, 436 (1781). Mant.

Ins. I, 269 (1787). Ent. Syst. Sup. 237, 8 (1792). Oliv. Encyc.

Méth. Ins. 7, 196, 161 (1792).

*Ophion morio* Fab. Syst. Piez. 132, 9 (1804).

*Ophion atricolor* Oliv. Encyc. Méth. Ins. 8, 511 (1811).

*Thyreodon morio* Brullé, Hym. IV, 152 (1846).

N. Eng., N. Y., Pa., Ill., Car. (St. Farg.), Am. Merid. (Fab.).

The apical joints of the antennæ are black.

Fabricius in his last notice of this insect (1804) calls it an *Ophion*. Olivier in 1811 seems to overlook his former description of it under the name of *Ich. morio* and redescribes it as *Ophion atricolor*, and Brullé in his turn has disregarded Olivier's description and refers back to Fabricius.

**EXOCHILUM** Wesmæl.

8. *Exochilum nigrovarium*.

*Anomalon nigrovarium* Brullé, Hym. IV, 172 ♀.

Two specimens. Conn. N. Am. (St. Farg.)

9. *Exochilum fuscipennis*, n. sp. ♀. Length 1.10 in. Br. wings 1.44 in.

Black, with rufous marks, wings smoky yellow. Antennæ reddish, several of

the basal joints black at their base, yellow before; vertex roughened, punctured behind the ocelli; a space before antennæ, a line on inner and outer orbits and a dot above, clypeus and front of labrum. upper side of mandibles and the palpi yellow; scutellum black, post-scutellum crenate, basin of metathorax sharply defined, with coarse punctures among the rougher carinæ; tegulæ, base of wings and legs yellowish; coxæ and apical half of posterior femora and tibiæ black; 1st, 2nd, 3rd and a spot above at base of 4th segments of abdomen rufous (except a black line on summit of 2nd and the edge of venter of 2nd and 3rd segments); the joints of 2nd and 3rd segments beneath and a spot at base of ovipositor, white; wings smoky yellow, darkest toward base, base of stigma yellow.

One specimen. Washington, D. C. (Baron Osten Sacken.)

10. *Exochilum mundus*.

*Ophion mundus* Say, Bost. Jour. 1, 228 ♂. Emmons, N. H. N. Y. Ag. V, 196.

*Anomalon flavipes* Brullé, Hym. IV, 170 ♀ ♂.

N. Eng., N. Y., Pa., Ia., Lake Sup., Mex. (St. Farg.).

11. *Exochilum tenuipes*, n. sp. ♀. Length 1.04 in. Br. wings 1.32 in.

Black, tarsi in part rufous. Antennæ yellow, four or five basal joints black; joints as long as wide; vertex roughened, face about and beneath antennæ punctured; a narrow line beneath antennæ and the inner and outer side of orbits yellow; mandibles and palpi piceous; scutellum rounded, prominent, not truncate behind; edges of metathoracic basin strongly defined, scalloped, basin transversely carinate, with an incomplete longitudinal fossula; tegulæ and second segment of abdomen somewhat piceous; legs slender, the two anterior pair rufous before; base of posterior femora, tibiæ and first joint of tarsi piceous; tarsi not much thickened; first joint nearly three times as long as second; wings black, semi-opaque, stigma dark.

Two specimens. Conn., and Mass. (S. H. Scudder).

**HETEROPELMA** Wesmæl.

12. *Heteropelma flavicorne*.

*Anomalon flavicorne* Brullé, Hym. IV, 171 ♀ ♂.

*Anomalon flavicornis* Say, West. Quar. Rep. II, 1, 74!!

Conn., Penn.

I am not sure that Say's species is the same with the above.

**ANOMALON** Grav.

Section I. Antennæ  $\frac{1}{2}$ — $\frac{3}{4}$  the length of body.

A. *Recurrent discoidal nervure broken at or a little below the middle.*

B. *Recurrent discoidal nervure broken above the middle.*

a. *Discoidal cell much contracted at base.*

13. *Anomalon relictus*. Length 1.08 in. Br. wings 1.16 in.

*Ophion relictus* Fab. Syst. Piez. 133, 12. Ent. Syst. Suppl. 236, 5 ♀ ♂.

♀. Color rufous. Head very wide, eyes but little contracted below; face below antennæ, cheeks and scutellum yellow; a spot above ocelli, front of mesothorax, a

band at summit of metathorax encircling body, base of four anterior coxæ, posterior coxæ and legs rufous; tips of posterior tibiæ black, the tarsi yellow; wings smoky yellow, deepest at base, slightly violaceous at tip, stigma rufous.

♂. The abdomen of the male is mostly rufous.

N. Y., Mass. (Harris Coll.), N. Am. (Fab.).

The head is larger than in any other species that I have seen, the metathoracic basin not defined at sides. This and all the following species of *Anomalon* have a black spot at base of first joint of abdomen beneath, as well as a black line on second segment above.

14. *Anomalon analis*.

*Ophion analis* Say, Macl. Lyc. 1, 76. ♀.

Ind. (Say), Mass. (S. H. Scudder), N. Y., Kansas.

This somewhat resembles *relictus*, but is smaller (L. 0.68. Br. 0.72 in.), the antennæ are dark and the eyes slightly contracted below, the head smaller, the metathoracic spiracles oval and the edges of the basin somewhat defined.

15. *Anomalon laterale*

*Anomalon laterale* Brullé, Hym. IV, 175. ♀ ♂.

N. York.

The lower half of metathoracic basin is concave and transversely rugose, with the sides sharply defined.

The male resembles the female.

b. *Discoidal cell not contracted at base.*

16. *Anomalon hyaline*, n. sp. Length 0.82 in. Br. wings 1.00 in.

♀. Rufous, with clear wings. Antennæ piceous, basal joints yellow, 4th and 5th joints blackish; head yellow, eyes reddish, the summit and back of head black, a yellow orbital dot on each side of ocelli, inner edge of mandibles piceous, front and base of mesothorax, apex of metathorax, pectus, apical half of first segment and the second segment of tergum black, valves of terebra yellow, clavate; anterior legs, basal half of posterior tibiæ and the tarsi yellow; posterior coxæ rufous beneath and black above; trochanters, apex of femora and tibiæ black; tegulæ yellow, wings hyaline, bullæ (or nerve fractures) small.

One specimen. Farmington, Conn.

The metathoracic spiracle is oval, basin distinct; sides rounded, transversely rugose.

17. *Anomalon nigro-rufus*, n. sp. Length 0.82 in. Br. wings 0.92 in.

♀. Black, abdomen rufous. Antennæ little more than half the length of body, dark piceous, at base beneath yellow, separated (as in *Thyreodon*) with the slender ridge below ocelli elevated into a thin prominent spine between; vertex coriaceous; face below antennæ, a dot each side of ocelli and the cheeks yellow; upper half and back of head, thorax and scutellum black; tegulæ and ridge from base of inferior wings to intermediate legs luteous; lower half of metathorax and abdomen rufous; the first and five-sixths of second segment of tergum black; apical segments of

tergum blackish; terebra styles yellowish; the four anterior legs yellow-rufous; posterior pair rufous, the coxæ and trochanters above, tips of femora and apical half of tibiæ black; tarsi yellow except base of first article; wings smoky hyaline, stigma reddish in middle.

One specimen. N. Y.

The antennæ are shorter than those of *hyaline*, and the eyes more widely separated, basin of metathorax rugose, largely concave, sides irregularly defined.

Section II. Antennæ less than  $\frac{1}{2}$  the length of body.

*Recurrent nervure broken above the middle, discoidal cell not contracted at base, metathoracic basin not concave, antennæ 35 to 37 jointed.*

18. *Anomalon curtus*, n. sp. ♂. Length 0.76 in. Br. wings 0.92 in.

♂. Black, abdomen rufous, spotted with yellow and black. Antennæ piceous, black at tip and base above (yellow beneath), vertex with confluent punctures, face below antennæ and a narrow line back of eyes, mandibles and palpi yellow; scutel black, prominent, rounded, coarsely punctured, two carinæ from apex to middle of metathorax; 1st, 2nd and part of 3rd and 4th segments of abdomen rufous; a black line on summit of 2nd, the sides of 3rd and 4th and the remaining segments black, spotted with yellow, the four anterior legs yellow; posterior coxæ, spot on trochanters, femora and apex of tibiæ black; a spot on tip of coxæ beneath, trochanters, base of tibiæ and tarsi yellow, tarsi blackish above. Wings hyaline, tegulæ and basal half of costa yellowish, stigma piceous.

Three specimens. Maine (Mr. Packard), Del. (Ent. Soc. Phil.).

19. *Anomalon ambiguus*, n. sp. ♀. Length 0.72 in. Br. wings 0.80 in.

♀. Black, abdomen rufous. Antennæ short, pale piceous, palest at base, yellow beneath; vertex coriaceous; orbits, face below antennæ, a spot on mandibles and palpi, tegulæ and scutel yellow; ridge between pleura and metathorax rufous; a black line on 2nd segment of abdomen above and the apical segments blackish; legs ferruginous, the two anterior pair palest; posterior coxæ and apical half of tibiæ black; tips of tarsi blackish above; wings smoky yellowish, stigma rufous.

One specimen. Mass. (S. H. Scudder).

20. *Anomalon semi-rufus*, n. sp. ♀. Length 0.72 in. Br. wings 0.84 in.

♀. Ferruginous and black. Antennæ hardly longer than thorax, 3rd article as long as 4th and 5th, color piceous, darkest toward tip, basal joints ferruginous; head ferruginous, vertex coarsely pitted, eyes approaching at bottom, face below antennæ yellow; edge of clypeus, labrum and mandibles ferruginous, hairy; scutel yellow, the sides of mesothorax, a dot behind scutel, the metathorax above, a stripe curving from tegulæ to base of pleura and the abdomen ferruginous; remainder of thorax, a line above second segment and on the sides of five apical segments black; terebra valves, four anterior legs, posterior trochanters and tarsi yellow; all the coxæ, intermediate femora above, posterior femora and tibiæ ferruginous, posterior trochanters in part and apex of tibiæ black; femora and tips of tarsi above blackish; wings faintly smoky, tegulæ yellowish, stigma and costa ferruginous.

One specimen. Albany, N. Y.

21. *Anomalon ferrugineus*, n. sp. ♀. Length 0.60 in. Br. wings 0.72 in.

♀. Ferruginous. Antennæ hardly as long as thorax, basal article palest, yellowish beneath, 3rd as long as 4th and 5th, remaining articles wider than long; vertex coarsely pitted, ocelli black; face below antennæ and a large spot on mandibles yellow, tips of mandibles black; base of costa, scutel, some irregular spots on sides of abdomen and the terebra valves yellow; a black line above 2nd segment; legs color of body, posterior pair darkest; anterior trochanters, tibiæ and tarsi, tips of posterior trochanters, femora and base of first article of tarsi yellow; wings yellowish smoky, stigma rufous.

Two specimens. Chicago, Ill. (P. R. Uhler).

The metathorax is coarsely pitted.

22. *Anomalon nigratum*, n. sp. ♂. Length 0.48 in. Br. wings 0.56 in.

♂. Black, abdomen partly rufous. Antennæ black, piceous beneath and yellow at base, a little longer than thorax, articles longer than wide; vertex rough, somewhat confluent punctured; a narrow reddish orbital line behind; face at the side of and beneath antennæ, a spot on mandibles and the palpi yellow, scutel black; metathorax flattened behind, obscurely transversely rugose, sides of basin distinct; abdomen rufous, base of 1st, a line on 2nd above, the sides of the three following and the apical segments black; tips of four anterior coxæ and the legs (except a black line on femora above), posterior trochanters, base of tibiæ and tarsi yellow; all the coxæ, the posterior femora and apical half of tibiæ black, posterior tarsi above and apical joints of all the tarsi reddish, wings smoky hyaline, costa pale, stigma piceous.

One specimen. Mass. (Harris Coll.).

Section III. Antennæ as long or nearly as long as body, very slender, abdomen slender, segments compressed toward apex.

a. *Discoidal area not contracted at base.*

23. *Anomalon luteo-pectus*, n. sp. ♂. Length 0.60 in. Br. wings 0.74 in.

♂. Black and rufous with yellow pectus. Antennæ longer than body; ferruginous, the sides of 1st article, the 2nd and 4th above and apex black; the basal article above and below and the 2nd and 4th beneath yellow; head yellow; ocelli ruby, a black spot on summit (enclosing ocelli, with a yellow dot on each side) covering back of head to neck; clypeus and mandibles with pale hair; mesothorax, apex of metathorax and part of pleura black; mesothorax distinctly trilobate, confluent punctured around the edges and between the lobes; tegulæ, scutel, front of pleura and pectus yellow; prothorax and neck, space below scutel, base of metathorax and abdomen pale ferruginous; line above 2nd segment and apex of abdomen black; four anterior legs, posterior coxæ, trochanters and tarsi yellow; a spot on posterior coxæ and trochanters above and the apical half of tibiæ black; femora and base of tibiæ rufous; wings hyaline, stigma pale.

One specimen. Farmington, Ct.

This and the succeeding species have the metathorax produced as in Sec I, with a shallow suture and interlacing carinæ over the whole surface. No black spot at base of 1st segment beneath.

b. *Discoidal area contracted at base.*

24. *Anomalon prismaticus*, n. sp. ♂ ♀. Length 0.48 in. Breadth wings 0.56 in. ♀. Honey yellow, with black pectus. Antennæ nearly as long as body, ferruginous; 2nd article above, base of 4th and apical articles blackish, basal articles yellow beneath; a spot enclosing ocelli and touching antennæ and a spot on back of head about the face, black; face below antennæ and the cheeks yellow; a spot on prominent lobe of mesothorax, sutures about scutellum, the pectus and two apical segments of abdomen above, black; the other segments darkest above; the four anterior coxæ and trochanters, anterior pair of legs and four posterior tarsi at base yellow; remainder of legs rufous, posterior darkest; apical half of posterior tibiae dark rufous; wings hyaline, with a beautiful prismatic reflection; nervures black. ♂. The vertical spot of male is larger; the lower half of pleura, summit and sides of metathorax black.

Four specimens. Mass. (S. H. Scudder), and Ct. June and July.

25. *Anomalon metallicus*, n. sp. ♀. Length 0.34 in. Br. wings 0.48 in. ♀. Honey yellow, pectus black. Antennæ about  $\frac{2}{3}$  the length of body, piceous; most of 4th, the extreme base of each succeeding article and the apex blackish, head yellow, smooth, a distinct black spot enclosing ocelli and extending over back of head; a spot in front and rear of mesothorax, a triangular spot on pleura, the pectus and three apical segments of abdomen above, black; venter, four anterior legs and posterior tarsi (in part) varying from yellow to pale rufous; four anterior coxæ and trochanters white, posterior legs rufous, trochanters and tips of tibiae blackish; wings hyaline, iridescent, nervures piceous.

One specimen. Mass. (S. H. Scudder).

**PANISCUS** Grav.

Scape of antennæ subovate, apex very obliquely truncated. Areolet triangular externally, nervure broken.

26. *Paniscus geminatus*.

*Ophion geminatus*, Say, Macl. Lyc. 1, 76.

N. Eng., N. Y., N. J., Pa., Del., Md., Va., Ill., Can., Cal.

There appears to be two distinct sizes of this, of which the largest averages about 0.90 in length, 1.18 br. wings and the smallest, length 0.48, br. wings 0.72 in., but I have not found sufficient difference between them to warrant calling them different species.

27. *Paniscus chloris*.

*Ophion chloris* Oliv. Encyc. Méthod. Ins. 8, p. 509 (1811).

"*Ophion pallidè, testaceus, immaculatus, abdomine falcato, subtus dentato.*"

*Hab.* N. Am.

There is very little doubt that this is the *O. geminatus* of Say, from which it differs only in having two or three "dentelures" beneath the abdomen. Most of my specimens have thin transparent projections beneath some of the segments, but they can hardly be called dentate or inclining to it.

**CAMPOPLEX** Grav.

Areolet of the wings complete (in all the species examined rhomboidal, the lower angle obtuse).

*Metathorax in the middle longitudinally concave or subsulcate.*

28. **Campoplex vitticollis**, Harris's Cat. ♀. Length 0.60 in. Br. wings 0.80 in. ♀. Ferruginous, with a black stripe on thorax. Antennæ moderate, ferruginous at tip and base, eyes scarcely contracted below, head black; mandibles, palpi and tegulæ yellow; tips of mandibles dark; face and thorax covered with silvery hair; a black line, interrupted by scutel, from the head to base of metathorax; scutel rufous at apex; a line on 2nd segment of abdomen, valves of terebra and the pectus black; anterior legs, tips of intermediate femora and legs below and base of posterior tibiæ yellow; a line on anterior femora above, intermediate coxæ, trochanters and femora, posterior coxæ, trochanters, base of femora beneath and tarsi black; four posterior coxæ above, femora and apex of tibiæ ferruginous; wings yellow hyaline, nervures dark.

Four specimens. Ct., and Md. (P. R. Uhler).

In this and all the succeeding species the thorax is closely punctured, except beneath the wings, where there is a small space more or less smooth or striate. The punctures are most coarse on the metathorax, sometimes appearing more like granulations than pits. The punctuation of the pleura is rather sparse and the color generally dull. In this species it is shining.

29. **Campoplex villosus**, n. sp. ♀ ♂. Length 0.64 in. Br. wings 0.76 in.

♀ ♂. Black, with the metathorax and abdomen ferruginous. Antennæ long, piceous beneath, produced to a slender tip; a thin longitudinal ridge between ocelli and antennæ; head and thorax covered with silvery hair, longest on face and metathorax; a spot on mandibles, palpi and tegulæ yellow; a triangle below inferior wings, metathorax, except at summit, posterior coxæ above and 1st segment of abdomen ruby-red; remainder of abdomen ferruginous, a black line on second segment; a spot on anterior coxæ, the four anterior legs and posterior tibiæ in the middle yellow; a line on anterior femora above, intermediate coxæ and most part of femora and posterior legs black; basin of metathorax transversely striate, the angles distinct, the ridge between them and the postscutel forming a carina, angulate or bent, above which are smooth shining spaces; wings hyaline.

Four specimens. Albany, N. Y., and Ct.

The pleura is covered with very fine punctures and shines like the abdomen. The carinæ on the summit of the metathorax appear in most species of *Campoplex*.

30. **Campoplex argenteus**, n. sp. ♀. Length 0.64 in. Br. wings 0.94 in.

♀. Black, with abdomen rufous, except at base. Antennæ a little more than half the length of body, flagellum dark piceous, basal joint yellow beneath (in some cases piceous or black), lower half of face and most of thorax covered with silvery white hair; basin above antennæ distinct, not rough, face below antennæ coarsely punctured; mandibles (except tips), palpi and tegulæ yellow; basin of metathorax transversely wrinkled below, striate above and shining at summit;



spiracle long; 1st segment of abdomen unusually globose toward apex and with the 2nd above and valves of terebra black; remaining segments rufous, more or less mottled with black; 2nd segment yellow or yellow rufous beneath; posterior tibiæ and spines and the four anterior legs yellow, except a line on anterior femora before, the intermediate coxæ and two-thirds of femora, which, with the posterior legs are black; wings smoky hyaline.

Three specimens. N. Y., Ct.

The abdomen of the females toward the apex is wide, flattened, as in *Ophon*, and truncated obliquely at end. The spaces above the carinæ on metathorax are punctured so as to appear striate in some lights and the summit of the angle enclosed by the carinæ is shining rugose.

31. *Campoplex diversus*, n. sp. ♀ ♂. Length 0.50-54. Br. wings 0.72-76 in.

♀. Black, abdomen partly rufous. Resembles *C. argenteus*, from which it differs as follows:—Antennæ piceous only toward tip, face somewhat contracted below antennæ; metathorax sq punctured as to appear granulate, and covered with white hair, except in basin; basin transversely wrinkled and striate to summit, not shining; first segment and upper part of second nearly to its apex black; second segment yellowish beneath; remainder of abdomen rufous, darkest toward end, and not widely flattened nor truncate as in *C. argenteus*; first segment not more globular at apex than in other species; legs as in *C. argenteus*, with more of black at base, anterior coxæ black; posterior tarsi blackish.

♂. The male has the two apical segments of the abdomen black and the four anterior legs wholly or mostly yellow. The antennæ are a little longer than those of the female.

Four specimens. Mass. (Scudder), Ct.

One couple taken pairing in June. This male has a yellow spot on the front of first article of antennæ. One specimen has the first segment of the abdomen and the posterior tibiæ almost entirely rufous.

This may be considered a variety of *C. argenteus*.

32. *Campoplex glaucus*, n. sp. ♀. Length 0.44 in. Br. wings 0.56 in.

♀. Black, abdomen rufous. Antennæ moderate, basin of vertex apparently coriaceous; a large reddish spot on mandibles; palpi pale; head and thorax covered with short whitish hair, not silvery; tegulæ yellowish; spiracle of metathorax ovate; basal half of first segment, a spot on second segment above and valves of terebra black; the four anterior legs with yellow tibiæ and tarsi, reddish toward base; posterior legs ferruginous; all the coxæ, trochanters, posterior tibiæ and tarsi above dark piceous, shading into ferruginous; wings hyaline.

One specimen. Farmington, Ct.

33. *Campoplex xanthogaster* Brullé, Hym. IV, 159. N. Am.

♀. "Black, with the abdomen and two posterior feet ferruginous; with the four anterior feet, the mouth and base of the antennæ yellow."

Not seen. From the description it differs from the preceeding in the markings of the abdomen, having the first segment yellow in its narrow

portion and the remainder red, with the back brown; the back of the second segment entirely and the base only of the third black; the four anterior trochanters yellow and the posterior pair ferruginous. I have an injured specimen to which this description will apply closely but not decisively.

34. *Campoplex assitus*, n. sp. ♀. Length 0.40 in. Br. wings 0.52 in.

♀. Black, with abdomen in part rufous. Antennæ piceous, long and slender, very finely produced toward the tip; face narrowed below the antennæ; head and sides of thorax with sparse white hair; on the face and pleura the punctures seem to run into striæ; the thorax above is finely punctured; mandibles piceous at tip; basin of metathorax with transverse striæ; spiracles on the sides of segments very prominent, basal and second segments of abdomen except the tip above black; apical segments with black above, second segment with fine cross striæ; legs black, anterior pair yellow beneath, below the coxæ: intermediate pair with a spot on tips of femora above and the tibiæ yellow; all the tarsi with whitish ends; wings faintly clouded.

One specimen. Farmington, Ct.

35. *Campoplex dissitus*, n. sp. Length 0.40 in. Br. wings 0.52 in.

♀. Black, abdomen mostly rufous. Antennæ moderate, dark piceous at tip, second joint almost ruby-red; face scarcely narrowed below antennæ, clothed with silvery hair; the body not finely punctured and hardly shining; basin of metathorax distinct; first and upper basal half of second segment of abdomen black; remainder of second above and part of third brown, remainder of abdomen red-ferruginous; spiracles indistinct; the ground color of the legs black; the four anterior femora yellowish toward the tips, the anterior tibiæ and tarsi yellow, the intermediate tibiæ and tarsi darker above than beneath; wings faintly clouded.

One specimen. Lake Saskatchewan (Camb. Museum).

36. *Campoplex alius*, n. sp. Length 0.38 in. Br. wings 0.54 in.

♀. Black, with red and black abdomen and honey yellow legs. Antennæ more than half the length of body, equal in size nearly to end, piceous, with basal joint palest. Face but little narrowed, apparently coriaceous; fine short silvery hair on face and thorax; mandibles and palpi honey yellow; pleura wrinkled and striate above, dull, with fine sparse punctures below; metathoracic basin deep, with transverse wrinkles; the first, second (except at tip) and the final segments of abdomen black; the tip of second and the third and fourth segments ferruginous; all the coxæ and the posterior trochanters black; posterior tibiæ at base and apex and the tarsi of four posterior legs blackish, remainder of legs honey yellow. Wings hyaline, nervures and tegulæ piceous.

One specimen. Mass. (S. H. Soudder).

37. *Campoplex genuinus*, n. sp. ♀ ♂. Length 0.36 in. Br. wings 0.52 in.

♀. Black, with honey yellow legs. Antennæ hardly half the length of body; the whole insect sericeous with short, fine white hair; clypeus protruded, rounded, palpi yellowish; face scarcely narrowed below antennæ; ocelli large, ruby colored, the smooth space beneath wings with fine curved striæ; spiracle very small,

oval, spiracle on first segment of abdomen near the apex, on the expansion of the petiole; seventh segment wider than the sixth, making the abdomen appear truncate; legs honey yellow, coxæ and trochanters black, apical joints of tarsi blackish. Wing hyaline, lower angle of radial cell less obtuse than usual.

♂. White hair upon the face shorter than female; clypeus retracted, rounded in middle; segments of abdomen hardly flattened.

Twenty five specimens. Farmington, Conn.

The clypeus in this species has a sinus on each side of the advanced nasus, therein differing from all the other species which have it evenly and moderately rounded.

I present this description of so many new species in this genus with hesitation and have endeavored to condense the number of species, but the variations in form are quite as great as in color, especially in the antennæ and abdomen, to which latter my descriptions hardly do justice.

I should add that the term rufous as used here is applied to the color termed ferruginous by Brullé which seems capable of latitude of interpretation.

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**LASIOPTERA** reared from a gall on the golden-rod.

BY BARON R. OSTEN SACKEN.

I am indebted to Mr. Edw. Norton for the communication of several specimens of this *Lasioptera*, reared by him in a box which contained a number of galls on the stalks of *Solidago*, all resembling more or less the common gall of *Trypeta Solidaginis* Fitch. By a careful examination of these galls and their contents I attempted to discover from which of them the *Lasioptera* had escaped. Although this attempt remained fruitless, and I did not find, as I had expected, any exuviae of the pupa of the midge, I will nevertheless communicate some facts, which resulted from my examination, and may be useful for future observers. I soon perceived that the galls could be separated into three groups. The first group was formed of the fully developed galls of the *T. solidaginis*, with the pupa-shell on the inside and the round hole, through which the fly had escaped, on the outside. The walls of the cavity of some of these galls showed a marked difference from the smooth and whitish or yellow walls of the normal specimens, being brown or blackish and bearing traces of the burrowing of some other insect than the larva of *Trypeta*, which, however, had not prevented the latter from completing its transformation, as

proved by the hole on the outside and the pupa-case within; in a few instances, there were on the outer surface of the gall, one or two holes, besides the large one of *Trypeta*. In one case, I had a curious instance of the in-door life of insects. The *Trypeta* had already burrowed its hole and was ready to escape, when a spider entered the gall through the hole just completed and sucked out the fly. The contracted skin and the head of the latter, as well as a cobweb, which I found in the cavity, plainly showed the nature of the incident. In the second group I placed some less developed galls, which I take to be those of the same fly, but arrested in their growth by the attack of a parasite. In one of them I found a perfect specimen of an *Eurytoma*; some others contained indistinct exuviae of a pupa. The third group comprised the galls, produced by a lepidopterous insect, which was proved by the frequent presence of the exuviae of the pupa; in one case also by the remains of the perfect insect, which had perished without having been able to escape; in another, by the carcass of the caterpillar, apparently consumed internally by parasites and crammed with the shells of their pupae, which thus prevented the skin from collapsing. These galls are easily distinguished from those of the *Trypeta* by their generally larger size, their more oblong form, their much thinner walls, and consequently, the much wider hollow space within. The section of the gall of *Trypeta* shows that its body consists of pith, with a space in the centre, just large enough to contain the larva. In the lepidopterous gall, on the contrary, there is no agglomeration of pith and its walls are not stouter than those of the stalk. I leave to lepidopterists the investigation of this gall, if it is not already known to them and will merely mention here that a gall, somewhat similar in appearance, has been figured by Perris (Ann. Soc. Entom. de Fr. 3<sup>e</sup> Sér. Vol. IV, Tab. 1, fig. III, 1. 2.) as being the produce of *Cochylis* (*Tortrix*) *hilarana* H. Schæff.

Does *Lasioptera* produce a gall for itself, very similar in appearance to the gall of *Trypeta* and therefore, perhaps overlooked by me, or taken out of the box, before it reached me? Or does it colonize the galls of *Trypeta*, after they have been abandoned by their original owner? Or else, before the escape of the latter, the larvæ of both species living in company? All three cases are not without precedent in the history of *Cecidomyiæ*. The burrows noticed above as occurring in some of the *Trypeta*-galls may perhaps be those of *Lasioptera*.

The question remains therefore open for future investigation. The new species may be described (from dry specimens) as follows:—

*Lasioptera solidaginis* O. S.—♂ ♀. Nigra, flavo-hirta, abdomine fasciis flavido-argenteis, interruptis, alarum margine anteriore puncto albo.

Black, with golden-yellow hairs, abdomen with yellowish-silvery bands, interrupted in the middle; costal margin of the wing with a white spot. Long. corp. 0.08–0.1.

Head black, face clothed with yellowish hairs; antennæ apparently 22-jointed, black; two basal joints clothed with yellowish hairs; thorax black, clothed with golden-yellow hairs, especially around the humeri; (the hairs on the dorsum are rubbed off in my specimens); near the root of the wing there are longer and more reddish-yellow hairs; those on the lower part of the pleuræ are whitish (they are rather scales than hairs); abdomen black, with silvery, somewhat yellowish, transverse bands formed of minute scales, on the hind part of the segments; these bands, six in number, occupy at least half the breadth of the segment, and are interrupted in the middle; the venter, in well preserved specimens, is silvery white; genitals yellowish; poisers yellow; legs yellow; the upper edge of the femora, a short distance before the knee, the outer side of the tibiae and the tarsi on their whole extent, are infuscated, almost black. (Viewed in a certain light, the legs appear golden-yellow, from some very minute hairs which cover them). Wings grey, on account of their dense pubescence; a white spot on the anterior margin at the tip of the two first longitudinal veins.

### Importance of INSECT ARCHITECTURE to Entomologists.

BY WILLIAM COUPER,

Assistant Secretary of the Literary and Historical Society, Quebec, &c.

That the study of forms constructed by the *Articulata* lead to the determination of the parent architects, is evident to every intelligent investigator of the insect world. Yet strange to say, I have not met with an Entomologist on this side of the Atlantic who specially devoted his leisure in collecting them. It cannot be said that it is for want of material that this neglect arises, for in Canada, I have collected upwards of six thousand specimens of both animal and vegetable structures formed by *larvæ*, or made use of by perfect insects to fulfill their ends.

A well arranged Cabinet of Insect Architecture presents a most charming picture to the lover of Nature — when these various and curious works of insects are brought together — then it is, that sensation and appreciation will be realized. It is at this stage that the Entomologist sees the real connective use of a collection of this nature with the Order of his study. A hasty glance over this accumulation of buildings erected by our little architects presents us the numerous and various shaped galls produced

by *Cynipidæ*; stems of plants exhibiting the labour of the parent insects in boring through the pith to form cells for their progeny. Plants, such as the *Conioselinum Canadensis*, the interior of the stem of which is occupied by hundreds of cocoons of a Moth. Leaves of plants rolled, curled, tented and mined by Caterpillars and Aphides. Cells of the various Hymenopterous insects; the beautiful little nests of wasps, some quite round, others pear-shaped, *the work of a single pair*. What a contrast between these little structures and the nest of the common Wasp, which is sometimes twelve inches in diameter. A wasp occurs in Western Canada that illustrates the constancy of specific work. This species generally selects a hole in a bank, such as would be left by the falling out of a round stone. The foundation is laid by a substance similar to that used by the common species; this is worked upwards for a short distance. They then procure a much whiter substance, and with it a second ring is formed of about three quarters of an inch wide. The nest is thus a continuation of white and brown rings, and from this peculiar instinct in the insect's mode of architecture, it is named *Vespa marginata*. Hymenopterous insects, also construct nests of mud and clay, laboring from day to day (in their season) until completion; and the species called hornet make use of the same kind of material that the cliff swallow selects to build its nest. The leaf-cutting Bee is provided with mandibles formed to cut circular pieces from leaves of plants, and often have I watched its dexterity and neatness of work. The collector of insect architecture may sometimes find under the bark of trees, three or four rolls of semi-decayed leaves, from one to two inches in length.—They are frequently placed side by side, and contain food on which the *larvæ* feed. The cells are not unlike a continuation of thimbles placed equidistant into each other. We also have the architectural labor of Ants in beautiful galleries, supported by pillars and traverses on which generations of the insects move up and down in the decayed tree.

The tubular aquatic nests of the *larvæ* of Caddis-flies are subjects for an enquiring mind; some being formed of grains of sand, others of leaves and pieces of wood.

A Coleopterist is content when the *imago* is discovered, and after describing it, considers his part performed towards the advancement of human knowledge. Another goes further in delineating forms of *larvæ*, but their architecture, in all cases, whether the work of *larvæ* or of *imago* is altogether neglected. Can not beauty and design be seen in the cocoons of *Osmoderma scabra* and *Osmoderma eremicola*? When the egg-shaped cocoons of these pith-eating *larvæ* are examined, we perceive them formed of fine par-

ticles of ejectamenta with fragments of wood, which the insect cements together by means of a saliva; and these pretty structures are formed in total darkness in the interior of trees. Does not the *imago Canthon laevis* teach us a lesson in the mode by which it provides food for its progeny; and why should the globular structure be rejected by the Entomologist? It is no wonder that the ancient Egyptians worshipped its relative.

The *Modus operandi* of the *Cicadæ* may be familiar to Entomologists; we know that they deposit their *ova* in branches of fruit trees, and I find the *exuviae* of the *nympha* state in forests, therefore, it is a nice investigation to determine the trees on which it is a parasite. What a pretty Collection the Lepidopterous Cocoons make of themselves? How many Students are there to day, who looks on the cocoons of this order as possessing interest?

The insects are all they care to make room for; large sums are expended to procure descriptive books, at the very time nature's information is within reach. Little thinking that the *Chrysalis* covering formed by the Caterpillar reveals the genus to which it belongs. For instance, this year a young beginner rears the Caterpillar of *Attacus luna*, which forms its cocoon, and in due time he procures the *imago*. Next year, he finds a Caterpillar of *Attacus polyphemus*, which, although a congener, differs from the former in form and markings. It also spins a like cocoon in size and texture, and in this way, our young beginner discovers that he is the possessor of two species of a genus. In Lepidoptera a remarkable analogy appears in the cocoons of every species of a genus; and we discover a difference between generic forms throughout the order. Hence, I am of the opinion that the cocoon is an easy means of specific identification, as well as to enhance classification. Insect Architecture supplies us with a correct history of Hymenopterous and Dipterous parasites. Its study makes us better acquainted with the destructive insects, and gives us a knowledge wherewith we can check their progress. The collector will also devote a space in the cabinet to spider architecture. They are the most ingenious structures, many of them, mathematically speaking, surpasses any form produced by true insects.

Two cases 18 by 24 inches will suffice to hold a large number of specimens. One should be 2½ inches deep, to contain small forms, and the other 6 inches, for larger ones. To have a glass frame on hinges,—the frame to fit into the case when closed; this is to prevent the escape of small parasitic Hymenoptera &c., which may from day to day appear. Mount the specimens on colored cards, that they may be better exhibited,—write remarks &c., relating thereto on the card, and with strong pins place it in the cabinet.

## Remarks on Tent-building Ants.

BY WILLIAM COUPER,

Assistant Secretary of the Literary and Historical Society, Quebec, &amp;c.

An Ant occurs on the Homewood estate, near Toronto, U. Canada, that constructs a kind of *papier mâché* tent over *Aphides*, parasitic on a species of Alder. This structure is attached to the smaller branches of the tree, generally about two or three feet from the ground. The material used by the Ants appears to be fine dust fallen from the interior of decayed hard-wood trees. They convert the dust into a sort of paste which is carried up in small particles. It is wonderful to notice the steadiness and rapidity of these little architects about their work. During the cooler portions of sunny days, the whole working force (*neuters*) of the nest are out at labor, running up and down on the main trunk of the shrub on which the *Aphides* are living. Each ant on its upward course, having a small particle of the ready-made building material in its mandibles, which it adds to the structure, and the work is continued daily until the extent of the colony of *Aphides* is under cover. The form of structure altogether depends on the position of the *Aphides*. It is sufficiently open interiorly to give the ants and plant-parasites plenty of room and ventilation, and there are also several holes leading from underneath the tent for the passage of the ants. I am led to mark this form of Insect Architecture as heretofore unnoticed in America, and although sufficiently familiar with the structure, the species, which is black, and about four lines long, is unknown to me. Could not a correspondent of the Society at Toronto, procure the insect, and its architecture? The locality is mentioned and the objects can be found during the month's of June, July and August. Kirby, in his Introduction to Entomology, Vol. 1. p. 480, mentions the European *F. æthiops* and *F. flava*, as using "sawdust in forming their buildings", but does not speak of the structure in connection with other insects. In Vol. II, p. 89, he says: "sometimes to rescue them from their rivals, they take their aphides\* in their mouth, they generally keep guard round them, and when the branch is conveniently situated, they have recourse to an expedient still more effectual to keep off interlopers,—they inclose it in a tube of earth or other materials, and thus confine them in a kind of paddock near their nest, and often communicating with it".

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\* The ant ascends the tree, says Linné, that it may milk its cows, the *Aphides*, not kill them. Syst. Nat. 962, 3.



This structure made over the Aphides is not the ants nest, but the property of the laboring portion of the colony, which are at a short distance in the earth. Against foes, it is guarded in daytime with more attention than soldiers guard the gates of a military city; and should an ant, even be it of the same species, from a neighboring nest, attempt to visit their "milk cows", it is pounced on and tumbled to the earth. Kirby says: "severe as this constant and unremitted daily labor seems, it is but a small part of what the affection of the working ants leads them readily to undertake. The *feeding* of the young brood, which rests solely upon them, is a more serious charge. The nest is constantly stored with larvæ the year round, during all which time, except in winter when the whole society is torpid, they require feeding several times a day with a viscid half-digested fluid that the workers disgorge into their mouths, which when hungry they stretch out to meet those of their nurses".

To advance our knowledge of insects is the object of Entomological Societies, but in some classes such cannot be perfected without attention to their architecture. Through it European Entomologists have made progress. The London Society possess a Cabinet of Insect Architecture, as is seen from the following,—“Prof. Westwood also exhibited numerous specimens of leaves which had been mined by larvæ of Diptera and Lepidoptera, arranged on card-board for the Cabinet, in such manner as to exhibit at a glance the difference between the various mines—a matter of considerable importance for the determination of the species”.—*Athenæum*, Nov. 1. 1862.

# INDEX.

The names of new genera and of new species are followed by the name of the Author.

	Page		Page
<i>Acanthocerus aphodioides</i> .....	46	<i>Apate</i> —.....	2
<i>Acanthosoma borealis</i> .....	23	<i>Aphidæ</i> , Genera of, found in the U. States, by Benj. D. Walsh.....	294
<i>Acidalia persimilata</i> , <i>Grote</i> .....	347	<i>Aphis avenæ</i> .....	141
<i>Adelocera impressicollis</i> .....	46	<i>bella</i> .....	299
<i>Ægeridæ</i> , new species of, and ob- servations on <i>Papilio Daunus</i> , by James Ridings.....	277	<i>carduella</i> , <i>Walsh</i> .....	300
<i>Ægeria</i> ? <i>quinque-caudata</i> , <i>Ridings</i>	277	<i>maidis</i> ?.....	300
<i>Ægilips obtusilobæ</i> , <i>O. S.</i> .....	68	<i>quercifoliæ</i> , <i>Walsh</i> .....	298
<i>Alaus myops</i> .....	46	<i>rudbeckiæ</i> ?.....	298
<i>myops</i> (larva).....	226	<i>vitis</i> ?.....	299
<i>Allantus excavatus</i> , <i>Norton</i> .....	143	<i>Aphodius fimetarius</i> .....	2
<i>Alydus calcaratus</i> .....	23	<i>inquinatus</i> .....	2
<i>cruentus</i> .....	23	<i>Apidæ</i> of N. A., Catalogue of the, by E. T. Cresson.....	335
<i>Amblynotus</i> ? <i>petiolicola</i> , <i>O. S.</i> .....	67	<i>Ardistomis viridis</i> .....	6
<i>Ancylochira fasciata</i> .....	46	<i>Argynnis Astarte</i> .....	221
<i>lineata</i> .....	32, 46	<i>Arhopalus pictus</i> .....	26
<i>Andrenidæ</i> of N. A., Catalogue of the, by E. T. Cresson.....	332	<i>pictus</i> (larva).....	30, 121
<i>Anobium paniceum</i> (larva).....	29	<i>Asemum mœstum</i> .....	6
<i>Anomala binotata</i> .....	6	<i>Aspidisca Ostryæfoliella</i> , <i>Clemens</i> , (larva).....	82
<i>lucicola</i> .....	74, 220	<i>Saliciella</i> , <i>Clem.</i> (larva).....	82
<i>Anomalon ambiguus</i> , <i>Norton</i> .....	362	<i>Aylax</i> ? <i>futilis</i> , <i>O. S.</i> .....	64
<i>analís</i> .....	361	<i>Bacanius tantillus</i> .....	43
<i>curtus</i> , <i>Norton</i> .....	362	<i>Baccha fuscipennis</i> .....	226
<i>ferrugineus</i> , <i>Norton</i> .....	363	<i>Batrissus globulus</i> .....	42
<i>hyaline</i> , <i>Norton</i> .....	361	<i>lineaticollis</i> .....	31, 186
<i>laterale</i> .....	361	<i>Bedellia somnulentella</i> , <i>Clemens</i> ...	147
<i>luteo-pectus</i> , <i>Norton</i> .....	363	<i>Bembecidæ</i> of N. A., Catalogue of the, by E. T. Cresson.....	316
<i>metallicus</i> , <i>Norton</i> .....	364	<i>Berosus striatus</i> .....	5
<i>nigratum</i> , <i>Norton</i> .....	363	<i>Brachys terminans</i> .....	31
<i>nigro-rufus</i> , <i>Norton</i> .....	361	<i>Brachytarsus tomentosus</i> .....	42
<i>prismaticus</i> , <i>Norton</i> .....	364	<i>Bryaxis longulus</i> .....	42
<i>relictus</i> .....	360	<i>Byrsocrypta pseudobyrsa</i> , <i>Walsh</i> ...	306
<i>semi-rufus</i> , <i>Norton</i> .....	362	<i>vagabunda</i> , <i>Walsh</i> .....	306
<i>Anthocaris genutia</i> .....	6	<i>Calaphis</i> , <i>Walsh</i> .....	301
<i>Anthrax</i> <i>Simson</i> .....	74, 226	<i>betulella</i> , <i>Walsh</i> .....	301
<i>Anthrenus destructor</i> (larva).....	28		

	Page		Page
<i>Callaspidia nubilipennis</i> .....	63	<i>Chrysomela philadelphia</i> .....	6
<i>quercus globulus</i> .....	67, 68	<i>Cicindela abdominalis</i> .....	42, 263
<i>Callidium? albofasciatum, Bland</i> ...	274	<i>baltimorensis</i> .....	6
<i>amœnum</i> .....	220	<i>consentanea</i> .....	217
<i>semicircularis, Bland</i> ...	275	<i>generosa</i> .....	6, 25
<i>variabile (larva)</i> .....	30	<i>patruela</i> .....	6
<i>varium (larva)</i> .....	30	<i>purpurea</i> .....	6
<i>Calosoma calidum</i> .....	25, 31	<i>rugifrons</i> .....	6
<i>Campoplex alius, Norton</i> .....	367	<i>sexguttata</i> .....	26
<i>argenteus, Norton</i> .....	365	<i>Cicindelidæ of N. A., Catalogue of</i>	
<i>assitus, Norton</i> .....	367	<i>the, by E. T. Cresson</i> .....	7
<i>dissitus, Norton</i> .....	367	<i>Cilix americana</i> .....	345
<i>diversus, Norton</i> .....	366	<i>Cimbex americana, synonyms of,</i>	
<i>genuinus, Norton</i> .....	367	<i>by Edward Norton</i> .....	201
<i>glaucus, Norton</i> .....	366	<i>Cistela erythroptera</i> .....	46
<i>villosus, Norton</i> .....	365	<i>Clytus araneiformis</i> .....	273
<i>vitticollis, Harris</i> .....	365	<i>erythrocephalus (larva)</i> .....	29
<i>xanthogaster</i> .....	366	<i>marginicollis</i> .....	6
<i>Canthon chalcites</i> .....	6	<i>pubescens</i> .....	32
<i>Capsus multicolor</i> .....	24	<i>Coccidula lepida</i> .....	193
<i>rapidus</i> .....	24	<i>Coccinella novemnotata</i> .....	6
<i>robinæ, Uhler</i> .....	24	<i>5-notata</i> .....	142
<i>Carabus serratus</i> .....	26	<i>Coleophora Caryæfoliella, Clemens,</i>	
<i>vinctus</i> .....	2	<i>(larva)</i> .....	78
<i>Cassida cruciata</i> .....	46	<i>Corylifoliella, Clemens,</i>	
<i>novemmaculata</i> .....	26	<i>(larva)</i> .....	79
<i>Catastega Aceriella, Clemens (larva)</i>	87	<i>Ostryæ, Clemens (larva)</i> .....	79
<i>? Hamaméliella, Clemens,</i>		<i>Pruniella, Clem. (larva)</i> .....	79
<i>(larva)</i> .....	87	<i>Querciella, Clem (larva)</i> .....	80
<i>timidella, Clemens (larva)</i> .....	87	<i>Tiliæfoliella, Clemens,</i>	
<i>Cedius Ziegleri</i> .....	42	<i>(larva)</i> .....	80
<i>Centronopus anthracinus (larva)</i> 30, 123		<i>Viburniella, Clemens,</i>	
<i>calcaratus (larva)</i> .....	30	<i>(larva)</i> .....	79
<i>Cerambycidæ, new species of, by</i>		<i>Coleoptera of N. A., Descriptions</i>	
<i>J. H. B. Bland</i> .....	267	<i>of new species, by J.H.B. Bland</i>	353
<i>Ceratocampa regalis</i> .....	42	<i>Coleoptera of N. A., some larvæ of,</i>	
<i>Ceratonia quadricornis, Metamor-</i>		<i>by Baron R. Osten Sacken</i> .....	105
<i>phoses of, by J. A. Lintner</i> .....	286	<i>Coleoptera of N. A., new species of</i>	
<i>Chalcididæ of N. A., Catalogue of,</i>		<i>by Geo. H. Horn</i> .....	187
<i>by E. T. Cresson</i> .....	227, 343	<i>Coleopterous Larvæ and Pupæ,</i>	
<i>Chalcolepidius viridipilis</i> .....	32	<i>Habits of, by G. H. Horn</i> ....	28, 43
<i>Chalcophora liberta</i> .....	142	<i>Colias philodice</i> .....	6
<i>virginica</i> .....	142	<i>Collops quadrimaculatus</i> .....	32
<i>Chalepus trachypygus</i> .....	2	<i>Conops sagittarius</i> .....	226
<i>Chersotis pinastri</i> .....	218	<i>tibialis</i> .....	226
<i>plecta</i> .....	218	<i>Copris ammon</i> .....	2
<i>Chlœnius chlorophanus</i> .....	42	<i>carolina, (larva)</i> .....	105
<i>prasinus</i> .....	42	<i>Coptodera viridipennis</i> .....	104
<i>Chrysidæ of N. A., Catalogue of,</i>		<i>Corymbites æthiops</i> .....	31
<i>by E. T. Cresson</i> .....	233, 344	<i>apressifrons</i> .....	32
		<i>fulvipes, Bland</i> .....	354

Page	Page
Corymbites Nebraskensis, <i>Bland</i> ... 355	Cynips quercus operator, <i>O. S.</i> ..... 256
tarsalis ..... 6	quercus palustris, <i>O. S.</i> 62, 251
Cotalpa lanigera ..... 217	quercus papillata, <i>O. S.</i> ..... 64
Crabronidæ of N. A., Catalogue of	quercus phellos, <i>O. S.</i> ..... 70
the, by E. T. Cresson..... 234, 344	quercus pisum..... 59, 250
Cre mastochilus Harrisii..... 6, 217	quercus spongifica, <i>O. S.</i> ..... 244
Crocota opella, <i>Grote</i> ..... 345	quercus strobilana, <i>O. S.</i> ..... 254
Cræsus latitarsus, <i>Norton</i> ..... 199	quercus tuber ..... 71
Crossidius pulchellus..... 273	quercus tubicola, <i>O. S.</i> .. 60, 250
pulehrior, <i>Bland</i> ..... 272	quercus verrucarum, <i>O. S.</i> .. 62
Cryptobium bicolor..... 45	seminator ..... 69
Cucujus clavipes ..... 6	Dasygogon discolor ..... 74, 226
Cupes capitata ..... 42	Dectes spinosa..... 32
Cychnus Andrewsii..... 46	Dermestes lardarius, (larva)..... 28
Ridingsii, <i>Bland</i> ..... 353	Desmocerus elongatus, <i>Bland</i> ..... 269
stenostomus ..... 6, 45	Diaperis hydni ..... 26
viduus ..... 46	Dicælus dilatatus ..... 46
Cyclocephala lurida, <i>Bland</i> ..... 354	elongatus..... 26, 31
Cymatodera puncticollis, <i>Bland</i> ..... 355	ovalis..... 31, 186
Cymus resedæ..... 23	politus ..... 26
Cynipidæ of N. A., Catalogue of the,	Dicerca spreta ..... 74
by E. T. Cresson ..... 202, 342	Dineutes americanus..... 5
Cynipidæ of the N. A. Oaks, and	Distenia undata..... 74
their Galls, by Baron R. Osten	Diurnal Lepidoptera of U. S. fig-
Sacken ..... 47	ured in Doubleday's Genera,
Additions & corrections to the	but undescribed, by Wm. H.
above paper, by Baron R. Os-	Edwards..... 221
ten Sacken..... 241	Dolopius oblongicollis..... 46
Cynips confuens ..... 56, 58	Donations to Cabinet, 2, 3, 4, 5, 27,
(Synerges?) lignicola, <i>O. S.</i> 252	31, 41, 44, 73, 91, 103, 140, 145,
nubilipennis..... 63	185, 190, 216, 220, 225, 238, 261,
oneratus..... 67, 68, 253	264, 282
pezomachoides, <i>O. S.</i> ..... 250	Donations to Library, 2, 3, 4, 6, 25,
quercus aciculata, <i>O. S.</i> 56, 245	31, 41, 44, 74, 91, 104, 141, 146,
quercus arbos..... 70	185, 193, 216, 220, 226, 239, 262,
quercus batatus..... 71	265, 283, 348
quercus centricola, <i>O. S.</i> 58, 246	Dorcaschema nigrum ..... 46
quercus coccinea, <i>O. S.</i> ..... 243	Dorcatoma simile..... 266
quercus cælebs, <i>O. S.</i> ..... 60	Dorcus brevis..... 263
quercus cornigera, <i>O. S.</i> ..... 251	Doryphora trimaculata, (larva).... 44
quercus ficus..... 69, 258	Dræpetes geminatus..... 32
quercus fusiformis, <i>O. S.</i> ..... 61	Dryocampa imperialis ..... 42
quercus futilis, <i>O. S.</i> ..... 63	Dryopteris, <i>Grote</i> ..... 345
quercus globulus ..... 67	marginata..... 345
quercus inanis, <i>O. S.</i> ..... 58, 242	rosea..... 345
quercus irregularis, <i>O. S.</i> ... 65	Dynastes Tityus..... 46
quercus juglans, <i>O. S.</i> ..... 255	Dysdercus lunulatus, <i>Uhler</i> ..... 24
quercus lanæ..... 62	Dysodia margaritana, <i>Clemens</i> ..... 137
quercus modesta, <i>O. S.</i> ..... 66	Eburia? Ulkei, <i>Bland</i> ..... 270
quercus nigræ, <i>O. S.</i> ..... 66, 257	Edessa cruciata..... 23

	Page		Page
Elaphidion ( <i>Stenosphenus</i> ) notatum.....	6	<i>Hæmonia</i> Melsheimeri.....	221
<i>Elaphrus</i> ruscarius.....	6	<i>Halipilus</i> americanus.....	5
Elections of Corresponding Members. 45, 74, 92, 104, 142, 146, 186, 193, 227, 264, 266, 284, 353		<i>Helichus</i> fastigiatus.....	42
Elections of Resident Members, 3, 4, 27, 74, 91, 146, 193, 266, 284, 353		<i>lithophilus</i> .....	42
<i>Endecatomo</i> rugosus.....	104	<i>Heliothis</i> armigera.....	347
<i>Epilachna</i> borealis, (larva).....	125	<i>umbrosus</i> , <i>Grote</i> .....	219, 347
<i>Eriosoma</i> ? <i>cornicola</i> , <i>Walsh</i> .....	304	<i>Helluomorpha</i> laticornis.....	6, 25, 26
<i>fungicola</i> , <i>Walsh</i> .....	304	Hemiptera, new species of, by P. R. Uhler.....	21
<i>Eriphus</i> Pearsalli, <i>Bland</i> .....	272	<i>Heterocera</i> , Synopsis of Families of, by Brackenridge Clemens..	173
<i>ruber</i> .....	74	<i>Heteropelma</i> flavicorne.....	360
<i>Eristalis</i> trifasciatus.....	74	<i>Hippodamia</i> parenthesis.....	6, 104
<i>Euchistus</i> luridus.....	23	<i>Hololepta</i> fossularis.....	46
<i>Eucmenidæ</i> of N. A., Catalogue of the, by E. T. Cresson.....	327	<i>Hybroma</i> , <i>Clemens</i> (new gen.).....	136
<i>Eudercus</i> pini.....	6	<i>servulella</i> , <i>Clemens</i> .....	137
<i>Euryomia</i> fulgida.....	26	<i>Hydnocera</i> verticalis.....	68, 71
<i>inda</i> .....	42	Hymenoptera, new species of, by Edward Norton.....	198
<i>Euura</i> orbitalis, <i>Norton</i> .....	144	Hymenoptera of N. A., Catalogues of, by E. T. Cresson 33, 202, 227, 316	
<i>Evaniidæ</i> of N. A., Catalogue of, by E. T. Cresson.....	204, 343	<i>Hypophlæus</i> thoracicus.....	220
<i>Exochilum</i> fuscipennis, <i>Norton</i> .....	359	<i>Hypulus</i> trifasciatus.....	220
<i>mundus</i> .....	360	<i>Ibalia</i> ensiger, <i>Norton</i> .....	200
<i>nigrovarium</i> .....	359	<i>Ichneumonidæ</i> of N. A., Catalogue of the, by E. T. Cresson... 205, 343	
<i>tenuipes</i> , <i>Norton</i> .....	360	Insect Architecture, importance to Entomologists, by W. Couper..	370
<i>Fenusa</i> curtus, <i>Norton</i> .....	199	<i>Lachnosterna</i> brevicollis.....	6
<i>Formica</i> aphidicola, <i>Walsh</i> .....	310	<i>fusca</i> .....	6
<i>latipes</i> , <i>Walsh</i> .....	311	<i>hirsuta</i> .....	6
<i>Formicidæ</i> of N. A., Catalogue of, by E. T. Cresson.....	324	<i>tristis</i> .....	6
<i>Fornax</i> badius, (larva).....	43, 112	<i>Lachnus</i> caryæ.....	303
<i>orchesides</i> , (larva).....	114	<i>Languria</i> Mozardi.....	193
<i>Galgulus</i> oculatus.....	104	<i>trifasciata</i> .....	6
<i>Gaurotes</i> abdominalis, <i>Bland</i> .....	270	<i>uhleri</i> , <i>Horn</i> .....	188
<i>cyanipennis</i> .....	31	<i>Laphria</i> glabrata.....	226
<i>Geopinus</i> incrassatus.....	25	<i>tergissa</i> .....	226
<i>Geotrupes</i> Egeriei.....	2	<i>Larridæ</i> of N. A., Catalogue of the, by E. T. Cresson.....	237, 344
<i>Glyptoscels</i> hirtus.....	31, 46	<i>Lasioptera</i> reared from a gall on the golden-rod, by Baron R. Osten Sacken.....	368
<i>Gnorimus</i> maculosus.....	6	<i>Lasioptera</i> solidaginis, <i>O. S.</i> .....	370
<i>Goes</i> debilis.....	220	<i>Lebia</i> ornata.....	46
<i>pulverulenta</i> , (larva).....	43	<i>scapularis</i> .....	26, 46, 193
<i>pulverulentus</i> .....	220	<i>viridis</i> .....	46
<i>Gonocerus</i> obliquus, <i>Uhler</i> .....	23	<i>vittata</i> .....	6, 46, 186
<i>tristis</i> .....	23	Lepidoptera of U. S., Additions to the Catalogue of, by Aug. R. Grote.....	218, 345
<i>Grapta</i> comma.....	182		
<i>faunus</i> .....	182		
<i>interrogationis</i> .....	6		

Page	Page
Leptura nitens, (larva)..... 30	Nepticula Amelanchierella, Clem- ens, (larva)..... 84
nitidicollis ..... 188	anguinella, Clem. (larva) 85
rubrica..... 221	bifasciella, Clemens..... 133
vittiger ..... 270	Caryæfoliella, Clemens, (larva)..... 84
Libellula Domitia..... 74	Cratægifoliella, Clemens, (larva)..... 83
Lithocolletis Juglandiella, Clemens (larva) ..... 81	fuscotibiella, Clemens..... 133
Salicifoliella, Clemens (larva)..... 81	Juglandifoliella, Clemens (larva)..... 84
Longicorn Coleoptera taken in the vicinity of Philadelphia, Cata- logue of, by J. H. B. Bland..... 93	Ostryæfoliella, Clemens, (larva)..... 83
Ludius attenuatus..... 46	Platanella, Clemens..... 133
Lycoperdina ..... 265	Platanella, Clem. (larva) 83
angulata..... 6	platea, Clemens, (larva). 85
Lyda abdominalis, Norton..... 199	? Prunifoliella, Clemens, (larva)..... 84
fasciata, Norton ..... 200	Rosefoliella, Clem. (larv.) 85
semicinctus, Norton..... 144	saginella, Clemens (larva) 85
Lygæus eurus..... 23	villosella, Clemens (larva) 84
geminatus ..... 23	Virginella, Clem. (larva) 83
5-spinosus ..... 23	miners of the Sycamore leaf, by Brackenridge Clemens 149
Lyonetia speculella, Clemens..... 134	Neuronea semifasciata..... 221
Macraulax tristis, Uhler..... 21	Nicagus obscurus ..... 31, 217
Margarinotus guttifer, Horn ..... 187	Nisoniades juvenalis..... 6
Matus bicarinatus ..... 26	Nomaretus imperfectus ..... 46
Megapenthes limbialis..... 46	Notiophilus porrectus..... 2, 26
Melitæa Anicia ..... 223	Oligomerus errans ..... 42
Chalcedon..... 222	Omophron americanum ..... 6
Micro-Lepidoptera of N. Am., by Brackenridge Clemens..... 147	Ophion, Anomalon, Paniscus and Campoplex, Catalogue of our species of, by Edward Norton 357
Micro-Lepidoptera, new species of, by Brackenridge Clemens..... 131	Ophion bifoveolatus..... 358
Micro-Lepidopterous Larvæ, Notes on, by Brackenridge Clemens.. 75	bilineatus..... 358
Microrhopala Xerene..... 32	cubensis, Norton..... 358
Midas clavatus..... 226	glabratus..... 358
Monocrepidius auritus..... 46	macrurum..... 359
bellus ..... 46	purgatus..... 358
Monilema lævigatum, Bland..... 267	Opostega albogaleriella, Clemens.... 131
subrugosum, Bland..... 268	Ornix quadripunctella, Clem. (larva) 86
Mutillidæ of N. A., Catalogue of, by E. T. Cresson..... 322	Orthopleura texana, Bland..... 356
Mycetophagus flexuosus ..... 26	Orthostethus infuscatus, (larva).... 43
Mycetophilidæ, Characters of the larvæ of, by Baron R. Osten Sacken ..... 151	Osmoderma scabrum..... 46
Mygale Hentzii..... 138	Otidoccephalus americanus..... 68
Myodites fasciata ..... 42	Oxyporus lateralis ..... 45
Myzoxylus..... 303	major..... 45
Necrophorus velutinus ..... 45	Pachycoris dissociatus, Uhler..... 21
	Paniscus chloris..... 364

	Page		Page
<i>Paniscus geminatus</i> .....	364	<i>Saperda discoidea</i> .....	74
<i>Panopoda Cressonii</i> , <i>Grote</i> .....	346	<i>Sarothrus? pisum</i> , <i>O. S.</i> .....	59
<i>Papilio asterias</i> .....	26	<i>Saturnia cecropia</i> .....	26
<i>Daunus</i> .....	278	<i>luna</i> .....	26
<i>glaucus</i> and <i>Papilio tur-</i>		<i>maia</i> .....	46
<i>nus</i> , are they the same		<i>polyphemus</i> .....	26
species?.....	265, 266, 349	<i>Sciara toxoneura</i> , <i>O. S.</i> .....	165
<i>glaucus</i> .....	265, 266, 349	<i>Schizoneura</i> .....	303
<i>marcellus</i> .....	26	<i>Scoliadæ</i> of N. A., Catalogue of the,	
<i>philenor</i> .....	26	by E. T. Cresson.....	320
<i>troilus</i> .....	26	<i>Serica iricolor</i> .....	42
<i>turnus</i> .....	26, 265, 266, 278, 349	<i>trochiformis</i> .....	26
<i>Parandra brunnea</i> , (larva).....	43, 118	<i>vespertina</i> .....	6, 26
<i>Pasimachus depressus</i> .....	46	<i>Sericomyia limbipennis</i> .....	74
<i>Pemphigus formicarius</i> , <i>Walsh</i> .....	308	<i>Sericosomus silaceus</i> .....	46
<i>formicetorum</i> , <i>Walsh</i> .....	308	<i>Sinoxylon</i> .....	29
<i>pyri</i> .....	307	<i>basilare</i> , (larva).....	29
<i>Pentatoma tristigma</i> .....	23	<i>Solenobia? Walshella</i> , <i>Clemens</i> .....	132
<i>variegata</i> .....	23	<i>Sphegidæ</i> of N. A., Catalogue of the,	
<i>Phanæus carnifex</i> .....	31	by E. T. Cresson.....	316
<i>Phylloxera caryæ-globuli</i> , <i>Walsh</i> ..	309	<i>Sphyracephala brevicornis</i> .....	26, 42
<i>Platydemia basalis</i> .....	31	<i>Staphylinus maculosus</i> .....	31
<i>ruficornis</i> .....	26	<i>Stenolophus ochropeus</i> .....	2
<i>Platyphyllum concavum</i> .....	3	<i>Stephanucha areata</i> .....	6
<i>Platynus (Agonum) octopunctata</i> ..	6	<i>Strategus Antæus</i> .....	26, 32
<i>Platypteryx</i> .....	346	<i>Strongylogaster multicinctus</i> , <i>Nort.</i>	143
<i>fabula</i> .....	346	<i>Synchroa punctata</i> , (larva).....	30
<i>formula</i> .....	345	<i>Synophrus? læviventris</i> , <i>O. S.</i> .....	57
<i>genicula</i> .....	346	<i>Tabanus lineola</i> .....	226
<i>Plochionus timidus</i> .....	104	<i>Tabuda fulvipes</i> .....	217
<i>Podura nivicola</i> .....	32	<i>Tarantula</i> , the, and its destroyer,	
<i>Polyommatus phleas</i> .....	6	by S. B. Buckley.....	138
<i>Pompilus formosus</i> .....	138	<i>Temnochila virescens</i> .....	46
<i>Prionocyphon discoideus</i> , (larva)...	115	<i>Tenaga</i> , <i>Clemens</i> (new gen.).....	135
<i>Proctotrupidæ</i> of N. A., Catalogue		<i>pomiliella</i> , <i>Clemens</i> .....	136
of the, by E. T. Cresson.....	232	<i>Tent-building Ants</i> , Remarks on,	
<i>Psarus quadrifasciatus</i> .....	74	by William Couper.....	373
<i>Psenocerus supernotatus</i> , (larva)...	122	<i>Tenthredinidæ</i> , new species of, by	
<i>Pterostichus lucublandus</i> .....	6	Edward Norton.....	143
<i>Ptilodactyla elaterina</i> , (larva)..	29, 109	<i>Tenthredinidæ</i> of N. A., Catalogue	
<i>Ptosima gibbicollis</i> .....	46	of the, by E. T. Cresson.....	34, 341
<i>Purpuriceus humeralis</i> .....	220, 276	<i>Tenthredo californicus</i> , <i>Norton</i> .....	198
<i>Pyrameis atalanta</i> .....	6	<i>14-punctatus</i> , <i>Norton</i> .....	143
<i>Pytho niger</i> .....	45	<i>Termes cinereus</i> , <i>Buckley</i> .....	212
<i>Rembus laticollis</i> .....	31	<i>flavipes</i> .....	215
Report of Recording Secretary	88, 279	<i>tubiformans</i> , <i>Buckley</i> .....	213
<i>Rhagium lineatum</i> .....	6, 30	<i>Termites</i> , new species of, by S. B.	
<i>trivittatum</i> .....	270	Buckley.....	212
<i>Rhyasodes conjungens</i> .....	42	<i>Tetraopes canteriator</i> .....	32
<i>Ripiphorus dimidiatus</i> .....	32	<i>Thecla niphon</i> .....	6

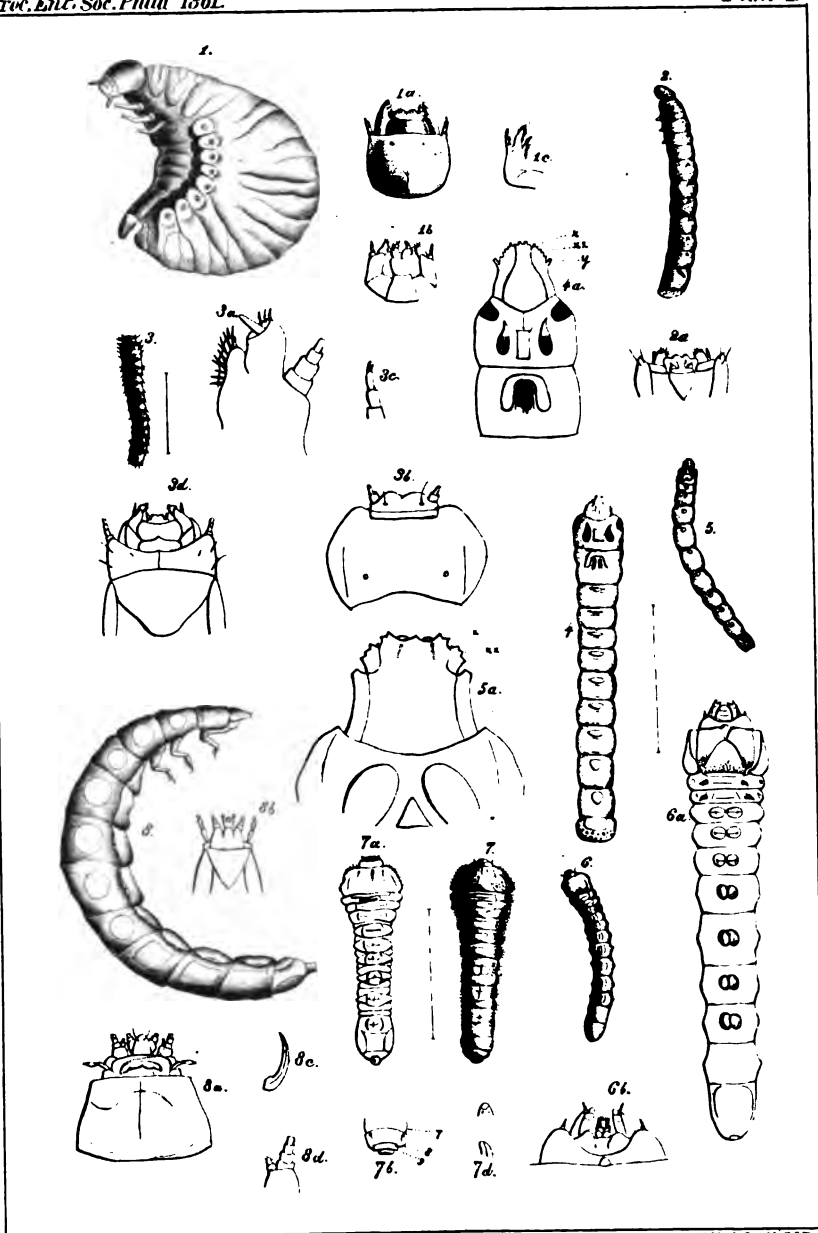
## ERRATA.

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- Page 2 line 15 from bottom, for *Geotrupus* read *Geotrupes*.  
 3 line 11 from bottom, for *Anneles* read *Annelés*.  
 6 line 17 from top, for *tristi* read *tristis*.  
 12 line 8 from bottom, for *flava-punctata* read *flavo-punctata*.  
 26 line 14 from top, for *pau-pau* read *pavo-pavo*.  
 29 line 8 from top, for *enable* read *enabled*.  
 32 line 6 from bottom, for *hight* read *height*.  
 33 line 7 from top, for *bases* read *basis*.  
 33 line 15 from bottom, for *synonymes* read *synonyms*.  
 35 line 6 from top, for *xanthothorax* read *xanthothorax*.  
 42 line 25 from top, for *novemboracensis* read *novemboracensis*.  
 43 line 15 from top, for *three eights* read *three-eighths*.  
 48 line 20 from bottom, for *Zeitehr.* read *Zeitschr.*  
 51 line 17 from top, for *parasitica* read *parasitic*.  
 59 line 14-15 from top, for *troecchanters* read *trochanters*.  
 62 line 11-12 from top, for *perceptilbe* read *perceptible*.  
 65 line 11 & 12 from bottom, for *subcosta* read *subcostal*.  
 73 line 15 from bottom, for *Clemen's* read *Clemens*.  
 78 line 18 from bottom, for *Leguiminosæ* read *Leguminosæ*.  
 93 line 18 from top, for *is* read *are*.  
 100 line 17 from bottom, for *Oliver* read *Olivier*.  
 124 line 8 from bottom, for *tibæ* read *tibiæ*.  
 131 line 11 from top, for *candulate* read *caudulate*.  
 138 line 9 from top, for *americana* read *aricularia*.  
 139 line 5 from top, for *desposition* read *deposition*.  
 144 line 9 & 11 from top, for *luteus* read *luteous*.  
 145 line 6-7 from bottom, for *Brachydertera* read *Brachydcuterna*.  
 152 line 7 from bottom, for *limbatella* read *limbatella*.  
 153 line 2 from bottom, for *f. 16* read *f. 9*.  
 154 line 4 from top, for *other* read *others*.  
 158 line 23 from top, for *was* read *were*.  
 158 line 6 from bottom, for *stigma* read *stigmata*.  
 160 line 23 from top, after the word *motion* add *of*.  
 161 line 8 from top, for *side* read *underside*.  
 161 line 13 from bottom, strike out *laying*.  
 161 line 7 from bottom, for *contined* read *continued*.  
 164 line 13 from top, for *has* read *have*.  
 165 line 17-18 from top, for *pubescence* read *pubescence*.  
 188 line 16 from top, for *ultimus* read *ultimis*.  
 190 line 13 from top, for *fenereus* read *funereus*.  
 191 line 7 from bottom, for *natata* read *notata*.  
 192 line 12 from top, for *Blata* read *Blatta*.  
 198 line 19-20 from top, for *Clyus* read *Clytus*.  
 214 line 12 from bottom, for *suaface* read *surface*.  
 224 line 12 from top, for *voilet* read *violet*.  
 239 line 16 from top, for *Atticus* read *Attacus*.  
 253 line 5 from bottom, for *puberlent* read *puberulent*.  
 254 line 11 from top, for *stobilana* read *strobilana*.  
 264 line 3 from top, for *London, of* read *of London*.  
 265 line 10 & 11 from top, for *Bands* read *Bände*.  
 281 line 6 from top, for *virture* read *virtue*.  
 284 line 19 from top, for *Couper* read *Couper*.  
 290 line 12 from bottom, for *two-eights and six-eights* read *two-eighths and six-eighths*.



	Page		Page
<i>Thecla smilacis</i> .....	6	<i>Trypoptys sericeus</i> .....	42
<i>Thelaxes ulmicola</i> .....	305	Urocerids of N. A., Catalogue of	
<i>Thyreodon morio</i> .....	359	the, by E. T. Cresson .....	39, 342
<i>Timetes Coresia</i> .....	224	<i>Vanessa antiopa</i> .....	6
<i>Toxotus cylindricollis</i> .....	46	orythia .....	74
trivittatus .....	270	Vespidæ of N. A., Catalogue of the,	
vittiger .....	46	by E. T. Cresson .....	330
<i>Trichius bibens</i> .....	46	Winter Collecting, by H. T. Fay...	194
<i>Trichodes apivorus</i> .....	46	Written Communications, 2, 5, 6,	
<i>Trichotaphe alacella</i> , <i>Clemens</i> .....	132	25, 27, 31, 32, 42, 45, 46, 74, 91,	
flavocostella, <i>Clemens</i> .....	131	104, 141, 146, 186, 193, 217, 220,	
<i>Triplax frontalis</i> , <i>Horn</i> .....	188	226, 263, 265, 284, 348, 349	
thoracica .....	26	<i>Xiphidria attenuatus</i> , <i>Norton</i> .....	144
<i>Tritoma biguttata</i> .....	42	<i>Xyela tricolor</i> , <i>Norton</i> .....	144
unicolor .....	74	<i>Zenoa picea</i> , (larva) .....	107
<i>Trogosita marginata</i> , <i>Horn</i> .....	187	<i>Zicrona exapta</i> .....	23
<i>Trupanca quadrata</i> .....	221	marginella .....	23
		splendida, <i>Uhler</i> .....	22



LITH. OF D. WIEST.

















